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PLEURITIS PURULENTA, EMPYEMA, OR PYO-THORAX IN THE HORSE.

BY GEORGE FLEMING, F.R.C.V.S., ARMY VETERINARY INSPECTOR.

THE formation of pus in idiopathic Pleurisy of the horse must be an exceedingly rare occurrence, as no mention is made of it in English veterinary literature, while it is scarcely alluded to in the writings of Continental veterinarians, so far as I can discover. And so far as my own personal experience is concerned, though I have had a fair share of cases of Pleurisy, yet until that I am about to describe presented itself, I never met with one in which suppuration of the pleural membrane was a result of the inflammation going on in it. The evidently exceeding rarity of Empyema in the horse must, therefore, be my excuse for offering the following notes of the case of troop mare B11, aged four years, belonging to the Second Life Guards. This case, in addition to furnishing us with an extraordinary—I might even say unparalleled—instance of pleural activity under the influence of inflammation, possesses several other features which are not without interest to the pathologist and surgeon.

On March 6th, 1879, the mare—a remount only recently purchased—was admitted to the hospital stables suffering from Catarrhal Fever, cases of which were then rather prevalent. There were the usual symptoms, as cough, difficulty in swallowing, nasal discharge, lachrymation, diminished secretions, dry hot mouth, injected mucous membranes, headache, inappetence and considerable prostration. The temperature was 104.2°, pulse

60, and respirations 35 per minute. The chest did not appear, on examination, to be affected to any marked extent. The ordinary treatment was prescribed.

On the 9th, the advent of Pleurisy was noted, and the temperature which had fallen to 103.2° on the 8th, was now 104.1°. On the 10th the symptoms of Pleurisy were more marked, though the inflammation was advancing in an almost imperceptible manner, the left side of the chest being chiefly involved. The temperature was 103.3°. Antipyretic medicines were administered, and hot water was applied to the sides of the chest by means of blankets, followed by mild counter-irritation. Mustard cataplasms were applied to the throat and breast. The weather was exceedingly variable: cold rain, frost and fogs, with rarely a sunshiny day; and the loose box, a temporary wooden structure, had a northerly aspect and was extremely uncomfortable.

March 11th. The fæces were of a dull brick-red colour, hard and dry; temperature 102.4°. Enemas were frequently administered, and a saline laxative given. On the evening of the 12th, the mare lay down, but soon got up again and appeared to be much worse than she had yet been. Temperature 104.2, pulse 78, respirations 28. Ammonia carbonate and tincture of aconite, were given alternately in small and frequently repeated doses.

On the 13th the more urgent thoracic symptoms appeared to be relieved. Temperature 102.3°, pulse 56, resp. 15. There was sub-thoracic effusion to some extent. Next day there appeared to be great improvement; temperature 101.2°, pulse 56, respiration normal. Until the 17th this amendment continued, and the pleuritic symptoms had disappeared. During the night of the 16th-17th, the external temperature fell very low and the cold was bitter. In the morning it was found that the mare was suffering from a relapse, notwithstanding the protection she was receiving from blankets and woollen bandages. The temperature was up to 102.3°, the pulse and respiration increased, the latter being chiefly abdominal. Next day the pulse was 60, resp. 40, and temperature 103.2°; the symptoms of Pleurisy were very marked, and there were physical signs of pleural effusion. On the 19th the effusion had increased; temperature 104.1°, pulse 73, resp. 36, no appetite. The mare had to be

fed with oatmeal and flour gruel, as well as a soup made of Warnecke's horse biscuit, which I can heartily recommend as a food for sick horses; it kept this mare alive for a long time. Small and frequent doses of Ol. terebinth were given in the soup, in addition to Ammon. acet. Charcoal stoves were placed in the box to raise the temperature, which was below freezing point.

On the 22nd there was much sub-thoracic effusion. Since the relapse there was complete loss of appetite, and the mare had to be drenched with gruel and biscuit soup to keep her alive. As there was distinct evidence that inter-thoracic effusion was going on, it was suggested that the treatment recommended by Schroth, the German physician, should be tried. This consists in producing inspissation of the blood by diminishing the supply of water going to it, instead of attempting to abstract the water from it, by feeding the patient upon the driest food possible and allowing scarcely any water to drink.

But this *régime* could not be carried out, as the animal would not eat food of any kind; and, as debility was now becoming a prominent symptom, food had to be administered, and this could not, of course, be given in a dry state. In such circumstances it is evident that Schroth's inspissating treatment cannot be carried into operation.

On the 23rd, the sub-thoracic effusion was very extensive, and the fore legs were tumified, from subcutaneous infiltration. The chest was deeply scarified, in order that the effusion—extra and intra-thoracic—might escape to some extent. The hot water to the sides of the chest had to be discontinued, as the skin had become rather tender.

Up to the 27th the treatment varied, according to the indications; and the animal was better one day, worse the next, the weather being inclement and baffling. On this date, the symptoms were more serious than they had yet been. The debility was great, while the distress in breathing was extreme. Temperature 103°, pulse 80, respirations 26. Next day exploration of the chest revealed the existence of a large quantity of fluid in its cavity. There was absolute dulness on percussion of the lower half of both sides of the thorax, with absence of

the respiratory murmur over the corresponding extent, and the breathing was extremely laboured. As the mare could not live for many hours unless relieved, I decided on performing paracentesis thoracis, and removing as much of the fluid as possible from the chest by means of the Aspirator. I was not aware of this instrument having been employed in Hydrothorax in the horse, so determined to give it a trial. Messrs. Arnold, instrument makers of West Smithfield, kindly lent me one of their strongest aspirators, which, though made for use in human surgery, yet answered my purpose tolerably well. The needle was introduced into the right side of the chest, behind the ninth rib, and about eight inches above the sternum. After a considerable time, but with little difficulty, about twenty quarts (five gallons) of citron, or rather orange-coloured and somewhat fibrinous fluid were withdrawn, to the great relief of the mare. The right side was selected for the operation, as the pleura there was less involved than on the left side. No air could obtain admission into the chest through the cannulated needle, and the aspiration was sufficiently powerful to pull small shreds of lymph into the bottle. To facilitate the introduction of the needle, a very small notch was previously made through the skin by rowelling scissors, and the needle was carefully pushed through the chest wall by a steady and slightly rotatory movement.

Stimulants, diuretics, and an abundance of nourishing gruel were administered.

The following morning, the night having been wretchedly cold, there was again much distress in breathing, and auscultation and percussion demonstrated that there was still a large quantity of fluid in the chest, which it was necessary to remove to a considerable extent. The aspirator needle was passed into the left side, a little lower than it had been on the right side, when, to my great astonishment, thick white pus began to flow like cream into the receiving bottle. Ten quarts (2½ gallons!) were removed before the needle was withdrawn. The temperature was, immediately before the operation, 102.1°, pulse 76, and respirations 26.

There was no desire to eat, so the mare continued to be fed with biscuit soup and flour and oatmeal gruel. The carbonate

and acetate of ammonia were given in small and often repeated doses, with Ol. terebinth.

On the 30th it was very manifest that yesterday's operation had afforded great relief. The respiration was very much easier, and the movements reduced to 20 per minute; the temperature was about normal (100.4°), and the pulse 64. The mare voluntarily ate two bran mashes, and drank a large quantity of biscuit soup. Ferruginous and vegetable tonics, with the stimulants and Ol. terebinth were given. The animal lay down during the night, for the first time since the symptoms of Pleurisy were noticed. Next morning, however, the weather being as inclement, she was not so well; the temperature was 101.2° pulse 72, respirations 24; and on the following day (April 1st) she was worse, the respirations being again increased to 28 per minute, and the respiratory movements laboured and discordant. The temperature was 101.2°, and pulse 82. The left side of the chest was again punctured by the needle of the aspirator, but only two quarts (half-a-gallon) of very thick pus were removed. As auscultation and percussion demonstrated that the quantity of fluid yet in the thorax was very great, and that adhesions between the two pleuræ on the left side probably formed an obstacle to its abstraction, the needle was introduced into the right side, when fourteen quarts (3½ gallons) of thinner pus were obtained. The mare exhibited signs of exhaustion after the operation, and received a large dose of Ammon. acet. Almost immediately afterwards she began to look cheerful and to eat heartily. Next morning, but for the emaciation, few persons could have told there was anything amiss with her; she lay down and fed well. Temperature 100.4°, pulse 78, respirations 22.

April 3rd.—The symptoms and physical exploration testified that a considerable portion of the chest space was occupied by fluid. Temperature 101.1°, pulse 66, respirations 20. Four quarts (1 gallon) of very thick creamy pus was drawn from the right side by the aspirator. Relief was immediately afforded, as before.

April 5th.—Another accumulation of fluid in the chest. Removed two quarts (half-a-gallon) of pus from the right side. Mare again relieved; eating voluntarily, and lying down.

April 7th.—There appears to be considerable abdominal or

diaphragmatic pain. Applied the aspirator, and removed five quarts (1¼ gallons) of pus from the lower part of the left side of the chest. Temperature 103.2°, pulse 82, respirations 28. The mare lay down soon after the operation and ate voluntarily, which she did not do whenever the fluid became abundant. Next day the temperature was 101.3°, pulse 66, respirations 22. The appetite was good, mashes and hay being eaten on this and following days, and she lay down and rested for considerable periods during the day and night.

April 9th.—The sub-thoracic effusion, which had hitherto been very extensive, suddenly and completely disappeared. Temperature 101.1°, pulse 68, respirations 20.

April 10th.—Continued improvement. Jerking up hind legs, and breathing as if suffering from abdominal or diaphragmatic pain, which continued on the 11th, and for which special treatment was prescribed.

April 12th.—Weather extremely cold and unpropitious. The mare's breathing was again somewhat laboured. She lay down for a short time and appeared exhausted; legs and body cold. A strong diffusible stimulant was given, and friction applied to the limbs. Soon after this she arose and began to eat, and the breathing became tranquil.

April 28th.—Up to this date the symptoms had been, on the whole, favourable, though they varied with the weather, which at times was most discouraging. The temperature did not exceed 101°, the pulse fell to 50, and the respirations were not at any time more than 20. Iron and vegetable tonics had been administered during the whole time, with ale and stout. Towards the end of the month, the cold was bitter and the air very damp, and, notwithstanding the presence of the charcoal stoves, clothing and bandages, it was impossible to keep the mare from chills. On this day, there was ample evidence that fluid had once more collected in the chest, and the aspirator being again applied, five quarts (1¼ gallons) of thick pus were drawn from the left side. Temperature 101.4°, pulse 74, respirations 19. Afterwards there was relief, and the animal ate well. On the 30th there was marked discordance in the respiratory movements. Temperature 101.3°, pulse 79, respirations 19.

May 1st.—Unfavourable symptoms again appearing. Punctured the left side of the chest, and removed four quarts (1 gallon) of pus, so thick and viscid, and containing so many dense clots (inspissated pus), that I had to desist and try the right side, near the floor of the cavity. Here, also, the fluid was so dense and lumpy that the suction of the aspirator failed to draw it through the largest needle. There was very great substernal Œdema, and for this scarifying was again resorted to.

May 2nd.—The limbs, especially the anterior ones, were much swollen, the swelling being hard and erysipelatous. The appetite was good, and the mare no worse.

May 3rd.—The tumefaction beneath the chest has disappeared, but the limbs are more swollen; still feeding well. Temperature 100.4°, pulse 72, respirations 22.

May 5th.—Yesterday and last evening the mare appeared to be livelier, and eating better than usual. She moved about the box freely, and seemed to be in every way better. At 5 this morning, when the stable guard visited her she appeared to be well; half-an-hour later she suddenly fell, and died in a few minutes.

The *autopsy* was made a few hours after death. The mucous membrane of the intestinal canal, as well as that of the vagina, had a deep yellow tinge, and was marked throughout with dark petechial stains. The pleuræ costalis and pulmonalis on the left side were so closely adherent, that the latter was torn off in removing the lungs. The texture of these organs was unaltered, and both were quite crepitant throughout, the left being only the seat of slight hypostatic congestion. Their volume, however, was wonderfully diminished, and pressed, as they were, against the roof of the chest cavity, they did not occupy more than one-half of its space. Large masses of inspissated pus, like the curd of milk, weighing perhaps about eight or ten pounds, lay in the floor of the chest, among a quantity of serum or liquor puris. The pleura investing the other portions of the lung and pericardium, and covering the diaphragm and right costal wall, as well as that forming the mediastium, were covered with a thick puriform exudate which gave the cavity and its contained organs a strange appearance—like that of the interior of some monster abscess.

The heart, externally and internally, was flecked with petechiæ, and there were other indications in the mucous membranes, kidneys and liver, that the blood had suffered deterioration during the long continued and most extensive pyogenic process going on in the chest.

The animal was kept alive for the comparatively long period between the first employment of the aspirator until death took place, by careful feeding and nursing, but more especially by the oft-repeated removal of the fluid formed in the chest whenever severe dyspnœa showed that asphyxia was imminent, through compression of the lungs. To this repeated, though never complete, evacuation of the chest (eight operations), was also doubtless due the pervious condition of the lungs, the alveoli of which had not time to become obliterated in the intervals.

I think there can scarcely be a doubt that in this case recovery would have been the result, had the weather and the accommodation been more favourable. The relapses always coincided with a sudden fall in the temperature to near or below freezing point; and as this could not be guarded against in the exposed loose box, the fact of its recurrence could only be noted.

This being the first time, I believe, in which the aspirator has been employed in the operation of *paracentesis thoracis* in animals, I am inclined to give the instrument a very strong recommendation. The safety with which it can be employed, the very small wound the needle makes, the powerful suction it exerts, and by which fluid can be removed from other than dependent parts, the frequency with which the needle can be introduced without any great injury to the intercostal muscles and pleura, and the impossibility of air gaining admission to the pleural cavities, as well as the cleanly and scientific-looking character of the operation, are entirely in favour of this instrument.

But some important alterations and improvements are needed in the present pattern, which is only intended for human surgery, before it can be looked upon as a veterinary aspirator, and especially for evacuating fluid in the chest. These alterations I intend to suggest to Messrs. Arnold, and it is to be hoped that veterinary surgeons, when they have the opportunity, may be induced to employ the aspirator instead of the dangerous, pain-

producing, inefficient, and barbarous-looking chest trocar and cannula.

Another point of interest in the above case, is the immense quantity of pus formed in the chest, and without the access of external air to its cavities. Altogether, *there were at least* 15½ *gallons of fluid* removed by the aspirator, and of this about *eleven gallons were pure pus*, drawn at seven operations. The purulent effusion was nearly always so thick and cohesive, that it could only be slowly drawn through the cannulated needle, and at last it was so dense that the suction of the aspirator could not withdraw it.

I may mention that the case was seen by a number of professional colleagues who visited me at St. John's Wood Barracks, among whom were Messrs. Robertson, Kelso; Billings, Berlin; Lyford, Montreal; Rowe, Shave, and Shaw, London; some of whom assisted me in the operation.

OSTEO-POROSIS.

BY H. J. CARTWRIGHT, F.R.C.V.S., WOLVERHAMPTON.

ON February 4th I was requested to visit Eaton Stud Paddocks, and make a *post-mortem* examination of a yearling colt, the property of the Duke of Westminster. On my arrival I learned that the colt, a most valuable one, by "Blair Athol," had been found dead in his box that morning, although he had shown no signs of ill health the previous evening, neither were there any marks of struggling, the bedding being quite undisturbed. All the internal organs were healthy, but there were comminuted fractures of both femurs, as well as of each humerus and two of the ribs. The fractures took various directions through the shafts of the bones. There was a large amount of coagulated blood around the fractures; more especially was this the case in the hind extremities, where quite a large sac full of blood had been formed in the surrounding muscles. The medullary canal was enlarged and full of reddish-coloured substance of the consistence of cheese. The compact tissue entering into the formation of the shafts of the bones was very thin, being

barely the eighth part of an inch in thickness, and the periosteum was easily peeled off.

[This was undoubtedly a case of Osteo-porosis, or, more properly speaking, *Fragilitas Ossium*; there being not only atrophy and degeneration, but also morbid brittleness of the bones.]

ANTHRAX FEVER, OR LOODIANAH DISEASE, IN INDIA; ITS SYMPTOMS, TREATMENT, CAUSE, AND PREVENTION.

BY JAMES MILLS, M.R.C.V.S., ROYAL HORSE ARTILLERY.

ANYTHING more important for the well-being of our army in India, and for the maintenance of its cavalry and artillery in perfect condition, for immediate service whenever and wherever wanted, cannot be conceived, except in keeping and maintaining the horses appertaining to both these branches in good working order, for which the scientific veterinary surgeons attached to the various corps are in the main responsible. Therefore it is our duty, when disease does occur, to thoroughly investigate it, and to make known to each other the result of such investigations, so as to enable us to grapple in an able manner with maladies as they arise, and to produce results alike gratifying to ourselves and all concerned. Thoroughly believing in this, I entertain a hope that the few remarks which I shall offer on this disease, as it presented itself to me on the occasion of two outbreaks which came under my notice while serving in India, may not be unacceptable to the readers of the VETERINARY JOURNAL, and more especially to those who aspire to Indian military fame.

It is my intention in writing this to embody the report which I made at the time of the first outbreak, and to add what further information I have gleaned since.

Both outbreaks took place at the station of Bareilly, in the Rohilkund district—the first in 1877, and the second the following year (1878), just after the rainy season.

This disease, commonly known as "Loodiana Disease" in

India, is an equine scourge which most veterinary surgeons in that country are acquainted with to a certain extent, and to which, for some time, great importance has been ascribed by most veterinarians there, and to the proper elucidation of which a certain degree of interest must attach; for it ought to offer the service of not only disinterring a slight amount of useful truth, but of overturning erroneous ideas, which lead to mistakes equally troublesome in their results to the practitioner and the patient.

Copy of report on first outbreak, with a few alterations and additions:—

"On the 16th September, 1877, Loodiana Disease of a most severe type made its appearance amongst the horses of 'C' Battery, 5th Brigade, R.A.; it raged with more or less intermission until the 15th October, when it was checked; and on the 24th September it showed itself amongst the grass-cutters' ponies belonging to the battery.

"On the 4th October it broke out in the 18th Bengal Cavalry, also stationed at Bareilly, but only made slow progress in that regiment until the 25th of the same month, when it stopped.

"On the 19th October it attacked a horse belonging to a private individual in the station—making a total of thirty-five animals attacked within a period of thirty-four days: thus, R.A.—twenty-six; grass-cutters' ponies, R.A., three; 18th B.C., five; private individuals, one (see Return No. 1).

No. 1.—Return showing the number of cases of Loodiana Fever that occurred at the Station of Bareilly during the years of 1877 and 1878.

Belonging to	Total Number of Admissions.	Cured.	Died.	Remarks.
Royal Artillery	26	17	9	1877.
ditto	6	4	2	1878.
Grass-cutters' Ponies ...	3	0	3	1877.
18th Bengal Cavalry ...	5	4	1	1877.
ditto ...	1	1	0	1878.
Private individuals in the station	1	1	0	1877.
Total	42	27	15	

"JAMES MILLS, V.S., R.H.A."

Definition.—A febrile disease of a most malignant type, due to the presence of bacteria in the blood, producing a strong disposition to putrescency of the fluids and solids of the body. It commences suddenly, runs its course rapidly, and often, in spite of every care, proves fatal, and invariably assumes an epizoötic form.

Symptoms.—The first symptom noticeable about an affected animal is, when the "feed" is sounded, he does not prick up his ears and neigh as is his usual wont, but stands dull and listless; and when the feed is offered he will not touch it.

Very frequently, when you are asked to see the patient, you will find him down, with the head turned either to the right or left, looking towards the abdomen with an appearance of heaviness or semi-lethargy, not unlike a cow in Milk Fever. There seems to be immediate depression of physical strength, and an almost total loss of nervous energy; so much so, that in many cases it is with difficulty you can get the patient to walk from the stables to the "sick lines."

The pulse is quick and frequent, ranging from 55 beats per minute and upwards, depending on the severity of the attack.

The respirations are hurried and laboured, with marked increase in the temperature of the body.

The tongue is at first white and clammy, but it gradually becomes like a piece of raw beef, with the papillæ intensely injected.

Throughout the course of the disease, the brain and the thoracic and abdominal viscera become more or less implicated, in fact, it would be difficult indeed to know what organ, or set of organs, suffers most, as it seems to affect them all; but there is little doubt that those of a highly vascular nature, or those already weakened by previous disease, are most likely to be affected.

The cerebral symptoms are similar to those of Phrenitis and Apoplexy.

Apoplexy.—When the brain is affected, the patient is most violent, or may look stupid, as if gazing at some imaginary object, with marked suffusion or prominence of the eyes; and if the case is a bad one, at length apoplectic symptoms set in, the breathing becomes slow, deep, and stertorous, the pulse slower, and the skin covered with a cold clammy perspiration. Where

this is present, the prognosis cannot be by any means favourable.

Thoracic Symptoms.—In the most intense cases the air-cells of the lungs become clogged with a viscid mucus, preventing the due arterialisation of the blood, producing oppressed and difficult breathing; mucous membrane of mouth and eyes of a livid or dusky hue, pupils dilated, the patient presenting a most anxious appearance. The functions of the brain become gradually more and more embarrassed, when a total deprivation of all sense and motion seems to set in—in fact, the animal is now in a state of coma. The extremities feel cold, and in a short time death supervenes from the destructive effect of the mal-oxygenated blood upon the brain and nervous system.

Abdominal Complications.—We are aware that the mucous membrane of the bowels is that which in fever is most liable to take on diseased action. This, of course, is easily accounted for, owing to their great vascularity; therefore it denotes that particular attention must be paid to them.

The fæces voided at first are of a yellowish-brown colour, and coated with mucus, and rarely of a constipated character. As a rule, you will find the bowels rather relaxed, but a great deal depends on the description of food the animal has been getting previous to the outset of the attack, and also whether there are enteric complications present or not; when due to the latter cause, we always have great fœtor from the fæces. If ulceration of the bowels sets in, it is almost certain to be attended with diarrhœa of a most obstinate character, resulting from the irritation produced by the presence of these ulcers. This diarrhœa will probably continue so long as the intestinal ulceration exists. In such cases the excrement becomes black, and contains quantities of bloody mucus; there is also great pain evinced during the act of defæcation, the patient arches the back, and emits a groan of agony.

The hepatic symptoms are well marked from the first, by the yellow appearance of the mucous membranes. The excretory functions of the liver seem to be suspended *pro tempore*, the bile is consequently retained in the blood and diffused throughout the system—this accounts, I think, for this abnormal tint given to

the membranes. What makes me ascribe this tinging to the liver is, that as soon as we can get that organ to act properly, the visible mucous membranes begin to assume their natural hue.

The urinary apparatus, when affected, causes great suffering to the patient. The urine at first is of a saffron colour, but as the disease progresses, it is gradually voided with more and more pain, at longer intervals, in smaller quantities, and quite thick—in fact, I can compare its appearance to nothing but linseed oil; it seems loaded with solid matter, and emits a very strong odour. Further on the colour of the urine becomes much darker, and is mixed with blood, and in bad cases, where the animal lingers on for a time, it looks as if it were quite putrid, accompanied with a fearful stench. If this bloody urine be allowed to stand for a time, it will deposit a coagulum at the bottom of the vessel, similar to that shewn in Hæmaturia; this is, no doubt, brought about by the extensive inflammation existing in the urinary organs. The peritoneum becomes highly inflamed, and on the slightest pressure in that region the animal shows immediate signs of pain.

The sensibility to heat and cold is greatly augmented in this disease—the skin and mucous membranes seem to be then in a certain state of hyper-action, and are consequently much more easily acted on by cold, and in that way inflammation of the internal structures of the body is set up.

Temperature.—As one of the principal symptoms (at least the most marked one) from the very onset of the attack, we have the temperature of the body increased. Great attention must be paid to this, as it serves as a good guide as to the termination of the malady. If the temperature is still very high after the second or third day, the case may be looked upon as a most serious one; but on the other hand, if it is gradually diminishing, you may expect recovery, unless the patient dies from the after effects of the disease.

What is most to be dreaded of all is œdema of the head and upper air-passages, which generally extends down to between the fore-legs. This infiltration of serum into the areolar tissue, is liable to affect any part of the body; but when the throat is

involved, the case assumes a very grave aspect, and as the swelling goes on, the patient gradually shows signs of suffocation (from the obstruction of the free passage of air into the lungs), which becomes more and more severe, and if not speedily relieved, death will ensue in a very short time. The animal when thus affected presents a most pitiable appearance, the head is immensely swollen, the eyelids closed, the tongue protruding from the mouth, black and tumefied, with a discharge from the eyes and nasal chambers of an amber colour, composed of serum and mucus. In cases where this symptom shows itself, very little hope of success in the treatment may be expected.

The disease is most likely to assume the most aggravated form in previously unhealthy constitutions. In such subjects the symptoms are most obstinate from the first, and rarely yield to treatment of any kind.

In favourable cases, a healthy crisis will begin to manifest itself in about nine or ten days, and convalescence will then set in, though sometimes slowly, the patient being left in a state of extreme debility, of course. I mention nine or ten days as about the average, as some cases are of short duration, and others protracted.

In some cases putrefaction sets in before death. The stench from the patient when this takes place is simply intolerable, taking complete possession of one's olfactory apparatus at a long distance off. This was well illustrated during the second outbreak at Bareilly, in one subject which lingered on a whole fortnight, passing through every possible stage of the disease before death came to the rescue. The sight was a most heart-rending one: she was a fine young mare, and fought bravely against it, until she dropped a mass of putrefaction, so much so that it was almost impossible to make a *post-mortem* examination of her. This patient had all the symptoms of Enteric Fever, and had several attacks of Gastro-enteritis, which diagnosis was correct, as shown by the ulcerated state of Peyers and the solitary glands of the intestines. There was also violent bleeding from the nose and mouth, the blood being as black as tar; there were also petechial spots previous to death.

(*To be continued.*)

EXTRAORDINARY LACTATION IN BITCHES.

BY PROFESSOR WALLEY, EDINBURGH VETERINARY COLLEGE.

1. "ROSA," a small, rough-haired terrier (probably Yorkshire), nine years old, and having had no puppies for upwards of eight years, affiliated a kitten, which had been brought by its mother and deposited in the kitchen of her owner's house, and allowed the cat to pay daily visits to her kennel for the purpose of suckling her offspring. About a fortnight after the adoption of the kitten, Rosa chased the mother away, when it was found—a day or two subsequently—that lactation in one of her posterior mammæ had taken place. She continues suckling the kitten yet.

2. Another terrier bitch commenced several months ago to suck her own mammæ, lactation becoming very active, and the flow of milk copious. She is nine years old, and has never been pregnant.

A parallel case to the first-mentioned was some time ago related to me by Mr. W. A. Taylor, of Manchester, the foster-mother being a greyhound, the suckling a fox-terrier puppy; but in this instance only about nine or twelve months had elapsed from the period of lactation.

TETANUS IN A COW FROM VAGINAL INJURY.

BY J. WOODROFFE HILL, F.R.C.V.S., WOLVERHAMPTON.

ON the 5th February, I was summoned to a milch cow belonging to John Jones, Esq., Mayor of Wolverhampton, supposed to be suffering from obstruction of the bowels. On my arrival I found the animal presenting all the aggravated symptoms of Tetanus —the jaws completely locked, the head and neck extended, the whole body rigid; and in turning, the most fearful excitement was manifested, and the creature fell down, as it were, in one piece.

She strained excessively, passing nothing but flatus; but this I attributed more to excitement than obstruction, or from some

internal irritant. I was at first under the impression that exposure to cold in the field during the day had given rise to the Tetanus; but of this I was subsequently undeceived.

An aperient was administered, counter-irritation applied to the spine, and perfect quietude enjoined. On my arrival next morning, she was still lying; the neck was not so rigid, and the jaws were relaxed to a slight extent. Still, the nose was carried out, and the *membrana nictitans* protruded over the eye on turning the head. Some small portions of fœculant matter, coated with mucus, and hard, had been evacuated. The straining continued, and there was more evident internal irritation and pain. I ordered a little febrifuge medicine, with quietude as before. In the evening she appeared decidedly better; the rigidity had disappeared, the neck was flexible, and the jaws could be opened some distance without excitement. She was, however, still unable to rise. No further passage of fæces having taken place, I ordered enemas, and no food except gruel. Early the following morning she was found dead, and had doubtless expired in great agony. She was lying squat on the abdomen, the hind legs stretched out on each side behind her, the hocks flexed, and the toes dug into the ground. The rectum was considerably protruded and red, and the vagina partially everted. The head was twisted round sideways to the right, and the face distorted. The poor creature had evidently died straining violently.

A *post-mortem* examination revealed the heart filled with black blood, and the blood-vessels generally were gorged with black, sticky blood. Lungs and liver congested. The gall-bladder was distended, and contained two half-pint bottles of bile, nearly black, and like treacle. Within the stomach was a large quantity of fluid ingesta, and there existed no stoppage throughout the intestines; but there was slight inflammation of the terminal portion. At this stage I left the subject, taking with me the bile and portions of the heart for examination.

When at home, thinking the case over, the thought suddenly flashed across my mind as to the cause of the violent straining—that perhaps the animal had sustained some vaginal injury, probably, as I suggested, maliciously. I therefore again visited the yard, and had the vagina carefully cut out and laid open,

when the origin of this symptom, and the consequent lockjaw, was at once palpable. Three lacerated wounds, one of which completely penetrated the wall of the vagina, were present. One existed on either side of the vagina, the third on the floor, between the two. The nearest was about five inches from the orifice. Considerable inflammation existed for some distance beyond, with serous effusion. Through the ruptured wall was a large amount of clotted blood. The injury had doubtless been caused by the violent insertion of a stick, or some similar instrument. At present the perpetrator of the brutal offence is undiscovered, but it is to be hoped he will be brought to justice, and punished as he richly deserves.

A FATAL DISEASE IN FOWLS.

BY A. GUNN, M.R.C.V.S., BALLOAN, BEAULY.

I SEND enclosed in a small box the diseased liver and a portion of the intestine of a fowl, and I am very anxious to have your kind assistance to elucidate the nature and cause of the malady.

This Fowl Disease was first noticed some two years ago, at a farm a few miles from here. I was then asked my opinion regarding the cause of the fatal disorder.

I made a careful inspection of the poultry-house, the water, the food, and the surrounding buildings, but could not find anything to throw light on the cause or origin of the malady.

After repeated and close observations, I find the symptoms presented by the affected bird are as follows:—Drooping wing and tail, great dulness, and a disinclination to wander about, excessive thirst, appetite does not seem to be impaired, comb becomes dark when the bird is about to succumb, no Diarrhœa; on a warm day the affected bird will lie and bask in the sun for hours. The duration of the disease, from the time the bird is first noticed, extends over an indefinite period—from two to four weeks. The birds that are allowed to die are very much emaciated.

I have repeatedly made a microscopic examination, with the expectation of finding parasites, but this has proved futile.

Some of the nodules in the liver and intestines are hard, and when cut with the knife feel gritty, and resemble in some respects the nodules of tuburcle. In some cases the whole of the intestines are covered with these nodules, as in the part I send.

At my request the poultry-house was completely gutted, thoroughly cleansed and disinfected, the whole of the birds killed, and a new stock brought in; but all to no purpose, as the disease again appeared. Age makes no difference. As to treatment, Chloride of Sodium was tried, as also Ferri Sulph., but without any good results.

Should you think this of any interest to the profession, I will be glad if you can give it a corner in the VETERINARY JOURNAL, with any remarks which you may make regarding the cause of the disease.

[Mr. Banham reports:—"The specimen sent was one of very common occurrence at the Brown Institution. Mr. Duguid used to call it 'cheesy deposit,' for want of a better name, I suppose. The cause of it is unknown to us, and its cure, so far as we can see, is as little known. The deposits appear to take place most frequently in the mouth, but are generally followed by others situated in some of the more vital parts, such as the intestines, peritoneum, or liver, and the disease is then of course incurable. It seems to be transmissible from one bird to another. I have frequently examined these nodules microscopically, but could detect nothing except cells resembling white blood-corpuscles, and granular *detritus*. My usual advice is to kill the affected ones at once, fatten the others as soon as possible, thoroughly clean and disinfect the houses, etc., and not re-stock for some time.

As Mr. Banham remarks, this disease of poultry is far from uncommon, and it is somewhat surprising that its fatality and destructiveness has not drawn more attention to it in this country, in order to elucidate its nature and devise measures of prevention. Though it has been neglected by us, yet it has received careful study by our Continental colleagues, and to these we refer for information. The disease is occasioned by a minute organism to which the name of *Psorosperm* was first given by Müller (*Müller's Archiv*, 1841, p. 477), and *Gregarine* by some subsequent investigators. The authorities who have made the subject of

"Psorospermism" or "Gregarinism" a special study, are very numerous, and the result of their researches proves that the entozoön is found in a large number of animals, in some of which it occasions serious disturbances, through invading important organs and tissues. First observed in fish, it was subsequently discovered in worms, insects, rabbits (particularly in the liver), then in mankind (especially in the intestines, liver, kidneys, and hair), monkeys, cattle, mice, dogs, poultry, and cats. The Psorosperm assumes four slightly different forms, one of which, found in muscle, is known as "Miescher's" or "Rainey's bodies." So long ago as 1835, Creplin noticed one of the forms—the *Navicell* or *Pseudo-navicell*—in the gills of the *Cyprinus rutilus* (*Archiv für Naturgeschichte*, 1842), and another form was first observed in the muscles of the mouse by Miescher in 1843, who described it as a utricle, the same form being afterwards found by Rainey in the muscles of a pig (*Philosophical Transactions*, 1857). Many others have found the same form in pig's flesh; others have discovered it in the sheep, goat, cattle, horses, poultry, mice, and rats; though not in mankind, dogs, or cats.

Perhaps the best description of Gregarinism or Psorospermism in the domestic animals, and especially poultry, is that given by Professors Rivolta and Silvestrini (*Il Medico Veterinario*, 1869, p. 203). In 1872 and 1873, these veterinarians investigated an extensive outbreak of Psorospermism or Gregarinosis among fowls in the neighbourhood of Pisa, and they enumerate no fewer than six different forms of the disease:—1. *Croupous Psorospermic Laryngitis*, in which the fowls were dull and had less appetite for some days, breathed with difficulty and noise, and finally died of suffocation. The mucous membrane of the larynx was red, studded with white granulations, and covered with exudate and epithelial cells. In severer cases a croupous membrane had formed in the larynx. In the pseudo-membranes, as well as in the epithelial cells, were masses of Psorosperms. 2. *Psorospermic Catarrh* or *Rhinitis*. The penetration of the Psorosperms into the nasal mucous membrane gives rise to great irritation, followed by redness, tumefaction, and the secretion of a yellow mucus. Respiration becomes very difficult, and the fowls die of Asphyxia. 3. *Croupous Inflammation of the Oral Mucous Membrane*. This is

characterised by the formation of a pseudo-membrane on the tongue and in the pharynx, which hinders the birds from swallowing, and they perish from inanition. 4. *Croupous Conjunctivitis.* This occurs when the Psorosperms enter the conjunctiva. It commences with hyperæmia and tumefaction, then ensues suppuration, and the appearance of a croupous membrane; the cornea is often involved and becomes ulcerated. When the exudate is removed, a new deposit occurs in from twelve to twenty-four hours. 5. *Psorospermosis of the Comb.* In this part the Psorosperm sets up serious irritation, and crusts of a brown colour and somewhat conical shape form thereon. In these crusts and in the epidermic cells, as well as in the Malpighian glands, are multitudes of Psorosperms. 6. *Psorospermic Enteritis.* This is seldom primary, and generally it is secondary to either or all of the first three forms. The fowls are dull, lose their appetite, and become emaciated; the feathers are lustreless, and the fæces soft, then fluid. As the disease progresses, the fowls become apathetic and stupid; they are disinclined to move; in a few days they are very emaciated and quickly die. When the Enteritis is primary, its course is less rapid than when it is complicated with any of the other forms. When examined, the body is so wasted that the intestines can be seen through the skin. In the intestinal mucous membrane are found white points or nodules, the size of a poppy-seed, scattered irregularly over its surface. The liver is also generally studded with them; they contain the Psorosperms.

Professor Baranski, of the Vienna Veterinary School, who has published an excellent paper on the subject in a recent number of the *Oesterreichische Vierteljahresschrift für Wissenschaftl. Veterinärkunde*, readily produced the disease in rabbits by feeding them with liver containing these nodules. He also produced Psorospermosis in frogs in the same manner, and with a view to study the phases in development of the entozoön. We propose referring to Baranski's researches at an early opportunity.

In the meantime, the etiology of the malady may be noticed. This is not yet quite clear, but there can be no doubt that damp, and particularly unsanitary conditions have much to do with its production and maintenance. A few weeks suffice for the abun-

dant development of the organism and the destruction of the animal it infests. The Psorosperms evidently find access by means of the food and water consumed, and they soon distribute themselves over the body. According to Paulicki's observations (*Beiträge zur Vergleichenden Pathol. Anatomie*), they even find their way through the placental circulation to the embryo in viviparous animals, as they have been found in the lungs and intestines of dead-born creatures. In the fœtus of a monkey (*Macacus cynomolgus*) they were discovered in these parts.

When situated in the intestines, the fæces are a fruitful source of dissemination of the entozoön; so that one infected animal introduced amongst healthy ones may contaminate the whole. Old animals, as in so many disorders of this class, are less readily infected than young ones. Individual predisposition, brought about by hygienic conditions, counts for something in readiness of infection; and a general insanitary state may lead to epizoöties of a widespread and destructive kind. When the disease has appeared in a poultry house or yard, the knowledge we now possess as to its cause and mode of extension furnishes the indications for its suppression. Cleansing in the most thorough manner is the chief measure; this applies more especially to the ground or floor and the water-troughs. Every Psorosperm should be destroyed. Diseased or suspected fowls should be killed, and burned or buried in quicklime; while those with which they have cohabited should be isolated, fatted, and killed. New fowls should not be introduced until every source of contamination has been removed.

Rabbits appear to be extremely liable to Psorospermosis; therefore fowls should not be allowed near them until their freedom from the entozoa has been ascertained. Other animals are also bearers of these pests.

The subject is a new and a very important one to English veterinarians; hence the reason for referring to it at such length in reply to our correspondent's inquiry.

The disease is not to be confounded with what we have described in "Veterinary Sanitary Science and Police" as Fowl Cholera. In that work, in the section on Trichinosis, will be found a drawing of the muscle Psorosperm.]

RHEUMATOID ARTHRITIS IN THE HORSE.

BY ROBERT WARD, F.R.C.V.S., LONDON.

THE following somewhat interesting case came under my charge on the 5th of June last—it is, by the way, the case referred to by me as one I should have recommended to be sent to the R.V.C., did I not fear the *result* likely to obtain through the two-guinea subscription system thereat.

On the morning of the 5th, I was requested to visit two cart-horses belonging to a London firm, which had been hard at work with others, drawing heavy goods to and about the Kilburn Show ground. Neither cared to feed, seemed to be chilled; "one was lame all over, and all of a heap," the horsekeeper informed me.

On arrival I found one, a bay horse, affected with congestion of the lungs; and the other, a fine English-bred cart-horse, nine years old, standing in the state as the horsekeeper remarked, "all of a heap," bathed in profuse perspiration, breathing quickly, and with a dull, listless appearance; pulse 80, wiry, intermittent and jerky in character; mouth hot and clammy; ears cold and damp; conjunctivæ slightly injected; the thermometer registered 103°. When I entered, the patient was trying to stale, but only a small quantity passed, of a thick, light-brown nature; not being prepared with a vessel, I was unable to catch any for test. The fetlock joints all round were swollen, hot, and tender, so that it was with great effort we made our patient turn in the stall. We managed in time to remove him to a loose box, and having explained the case as one of Rheumatic Fever, which doubtless would determine to the joints, and terminate in a case of Rheumatoid Arthritis pure and simple, the cause of the affection was so clear that I was at once followed; for these horses had been for days working up to their hocks and elbows in wet clay, and frequently standing a long time therein whilst the goods were being unloaded. Having given orders about diet, gruel, etc., together with careful drying of the surface of the body, and rugging, I prescribed Mist. oleaginous co. with Ol. tigli. ℥x., to be given instanter, and to be followed by Mist. Aconiti saline co., containing ℥v. of Fleming's Tinct., to be repeated every three or four hours, and the extremities bandaged.

The next morning (6th) I found my patient a little more com-

dant development of the organism and the destruction of the animal it infests. The Psorosperms evidently find access by means of the food and water consumed, and they soon distribute themselves over the body. According to Paulicki's observations (*Beiträge zur Vergleichenden Pathol. Anatomie*), they even find their way through the placental circulation to the embryo in viviparous animals, as they have been found in the lungs and intestines of dead-born creatures. In the fœtus of a monkey (*Macacus cynomolgus*) they were discovered in these parts.

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The next morning (6th) I found my patient a little more com-

posed, but quite unable to move; his pulse was 70, wiry and jerky; heat 102°; his joints tender, and the knees beginning to swell and become as painful as the fetlocks. Prescribed Linit. aconiti c. Camphora co. to the joints, and dry bandages—the liniment also to be applied to the loins; and as the bowels had not responded, I repeated the Mist. ol. co. c. Ol. tigli. as before; repeat Mist. aconiti co. every four hours.

Visit on the 7th.—I found patient much the same, joints more swollen, especially the knees: ordered light hand-rubbing again and Linit. aconiti co. The pulse was 70, heat 102°, bowels not acting, and the animal had passed but little water, which was dark and of a thick consistence. I ordered enematas to be thrown up every three hours, gruel to be exhibited if animal would not drink it, and left a dozen powders of Pot. chloras. to be given in it. Extremities to be attended to as before.

8th.—Visit. Patient much the same; bowels acted slightly, very offensive; urine scanty and frequent; does not feed. Pulse 70, wiry, less jerky or catching; breathing easier; heat 101°; joints painful and much swollen, the hock joints are now swelling—continue treatment to them. Repeat Ol. mist. co. c. Ol. tigli. ɱx., and Mist. aconiti co. every six hours; repeat Pulvis. pot. chloras., and twice a day exhibit enemata simplex.

10th.—Visit. Patient appears easier, and moves about a little by himself; bowels have acted, but not freely; urine still scanty, and efforts frequent. Prescribed Tinct. hyoscami, Liq. potassæ in mucilaginous Mist., with Hydr. subchlor. ʒs on the tongue; loins to be rubbed well with Lint. aconiti co.

11th.—Repeat treatment.

12th.—Visit. Patient much easier, pulse 62, heat 100.2°; repeat treatment to extremities, and give Tinct. hyoscami et Liq. potassæ mist. at night, repeating Mist. aconiti in the morning of 13th if demanded.

Fæces fairly moist; urine still slight, but better. From this date to the 19th the treatment was much the same, and the case making progress in the most satisfactory manner. Now and then the bowels were treated to an enemao simplex and Mist. ol. co.

On the 19th the patient appeared to have taken a turn, and

was mending; his appetite had returned somewhat, his urine was better, his pulse 50, heat 100°, breathing easy, and his joints getting reduced in size. Prescribed tonics, slight walking exercise, hand-rubbing, etc.

The patient continued to mend apace, and on the 27th case was marked off "*doing well.*"

On the 8th July telegram came soliciting immediate attention. On arriving at the stables and entering the box I found my patient in greater pain than ever, both his stifle joints had become enormously swollen, hot, and intensely painful; ordered the Linit. aconiti co. to be well applied, Mist. aconiti co. exhibited in the ℥v. doses every three hours till easy. The pulse was again 70, the heat 102°, breathing hurried.

9th, 10th, and 11th.—Patient was treated much the same, an oleaginous mixture being given once.

On the 12th the off stifle appeared much reduced, but the near larger than ever, so we applied a blister to each stifle joint, the near being most carefully attended to.

On the 16th I found the swelling had become soft anteriorly in the near stifle joint; just below it I found a suitable place to open the sac and allow exit to the imprisoned fluid; and making an opening, an escape of quite a gallon of serous-looking fluid, most offensive in smell, followed, which appeared to give the patient immense relief. I ordered the part to be well fomented and to be well dressed with carbolic liniment. Left.

19th.—I inserted a seton through the swelling, and in doing so an enormous quantity of pus, *most offensive*, escaped. Prescribed Ml. and Veg. tonics.

From this date to the 29th the seton was daily dressed and frequently renewed, the discharge being enormous as well as fœtid. The seton was removed and the part was well syringed, with warm water first, then with carbolic lotion, and this was repeated twice a day until August 9th, when the near stifle was again blistered; the off, by the way, had gradually subsided and was now quite reduced. The carbolic lotion was changed for one of Zn. Cl., and this was used daily up to the 20th, when, as the discharge still continued, a strong injection of carbolic lotion was used; but still the same copious discharge, though not so fœtid,

and as the owners had become anxious, it was determined to try more severe measures to set up healthy action. So, on the 25th, I injected Tinct. iodi. co. ʒj.

On the 29th I saw the case again, and found the discharge somewhat suppressed and healthier, and repeated the injection, using some ʒijs., and dressed the part well around the outside. My friend, Mr. Banham, was present at the time, and was rather astonished at my treatment as a *dernier resort.* However, on September 5th, the discharge ceased entirely, the wounds healed, and on the 13th I discharged the patient. He was nursed a few weeks and gently exercised, then resumed work, which he has continued up to this present, March 6th, in better health than ever. I might mention that during the latter part of the time I exhibited doses of the iodide of potash with Hyoscami mist.

Remarks.—The history of this case led us at once to find a cause for such severe symptoms ; but it has occurred to me since, that this animal's blood was in a pyohæmic condition long prior to the rheumatic attack, the result of exposure on the wet, clayey soil of Kilburn Show grounds ; and that this attack became a factor, if I may use the term, for the development of the true condition of the blood, for this animal never had done so well as he should, and now, after the attack, mends apace. The great difficulty was to set up healthy action in the abscess formed in the stifle, and however severe the injection of the Tinct. iodi co. may be, I must say I have been most fortunate with my cases so treated, and have been surprised how speedily the healthy, healing process develops afterwards. The kidneys did not, during the period of the rheumatic symptoms, appear to be structurally affected, although the carter said the animal had not staled so freely. This I took as evidence of premonitory symptoms of the affection, which it is always ushered in with.

THE ŒSTRUS OVIS.

BY CHARLES WHITWORTH, F.R.C.V.S., LONDON.

THE "Œstrus Ovis," or "gad-fly" of the sheep, assumes its perfect winged form at some uncertain period from May to July. Its almost sole object is now the multiplication of its kind, from which it is diverted by no other propensity. And this important duty being performed, the end of its existence has been achieved, and it expires.

If one or more of these Œstri appear, the whole flock are much excited; and if one is attacked, it will bound away from the rest of the flock, across the field, looking fearful behind it at every stride. The Œstrus, impelled by instinct, endeavours to deposit its eggs on the inner margin of the nose, where the necessary conditions exist for the development of the larvæ, which crawl into the maxillary sinuses; and when full grown they fall from the nostril and change into the pupa state. The fly bursts the shell of pupa, say, in about two months.

On referring to my case-book, I find that in April, 1871, at the request of W. Moore, Esq., of Burton, Lincolnshire, I examined a flock of hogs, which were suffering from an attack of Œstrus Ovis. This is about the period these larvæ have attained their full growth and seek to escape. Consequently they are restless in their habitation, and the sheep suffer considerable annoyance, which they manifest by stamping and snorting, together with the following symptoms.

Symptoms.—Pyrexia, marasmus, anorexia, sneezing; nasal discharge (from both nares), profuse and muco-purulent, assuming a greenish hue, and tenaciously adhering to upper lips; shaking of head and rubbing nose on grass; lips œdematous; rumination suspended; wool leaves the skin on the slightest touch; on closely examining "hogs" you discover larvæ about nares, agglutinated by mucus, and lying on the ground. The most anæmic sheep segregate themselves and die.

Treatment.—The hogs were removed to the best grass land on the farm, and run thin—*i.e.*, allowed to range and change; and they had given them nitrogenous food and chloride of sodium *ad lib.;* afterwards reconstructive tonics. Nearly all recovered.

Editorial.

GLANDERS IN LONDON.

At the risk of being considered tiresome, we again call attention to the prevalence of Glanders in London, and the absence of efficient inspection to extinguish this dangerous and destructive disease. As will be seen by our parliamentary report, no fewer than 116 horses were destroyed in Kensington parish alone in the space of six months, and even that large number may be far inferior to the real one. From all we hear, we have every reason to believe that the number of cases of Farcy and Glanders reported to the Veterinary Department of the Privy Council, does not give anything like an idea of the prevalence of the scourge, which, instead of being represented by tens, might more correctly be shown by hundreds. Many veterinary surgeons in London could tell a startling tale as to the extent to which Glanders prevails, and the manner in which its existence is ignored; but as they have no interest in making themselves officious; and as the authorities appear to be quite satisfied with the present measures in regard to its suppression, as well as with the control of knackeries, we suppose the disorder will remain as rampant as heretofore. We certainly cannot discover any greater activity in detecting cases on the part of the local authorities. We trust some active member will take the question up in our new parliament. There is ample material for a good case on behalf of horse-owners and the general public.

"SHEEP-ROT" *(CACHEXIA ICTERICO VERMINOSA).*

BY PROFESSOR FRIEDBERGER, MUNICH VETERINARY SCHOOL.

(*Continued from p.* 188.)

SHEEP No. 3 (Wether).

Status præsens on the morning of the 31st January. Emaciation; visible mucous membranes and skin pale, but not the slightest trace of yellow colour. Wool dry, faded, and easily pulled out. External temperature varied in different parts (ears hot, extremities cold). Heart's beat felt with difficulty; pulse 120, and irregular; internal temperature 39·8° C.; respirations somewhat difficult, abdominal, and variable in number, being, when in complete quietude, from 24 to 30. Nose damp and cold; no cough; auscultation gave increased vesicular murmur. Mouth covered with slimy matter. Abdomen tucked up. No pain was exhibited upon pressure being applied to the right side in the region of the liver. Peristaltic action of rumen present, but sluggish. Fed tolerably well, but rumination had not been noticed. Fæces normal in colour, form, and consistence (now and then a parasite could be found). Urine dark yellow, clear, alkaline, and effervesced when an acid was added; contained chlorides, but was free from biliary colouring matter. The animal stands lazily; weak, with head depressed, and showed little resistence when handled, but when pressed upon the back it shrank and cringed.

In the evening the temperature was 40·2° C.; pulse 110; resp. 20. The animal was watched for some time with the following results :—*

Time of Observation.	Pulse.	Temp.	Resp.	Observations.
Feb. 1. morning	120	40·5C.	18-20	Ruminates but seldom, and only for short periods at a time.
evening	104	40·3	20	
,, 2. morning	92-96	40·8	20-24	Urine alkaline, but effervesces no longer.
evening	96	40·5	28	
,, 3. morning	96-100	40·7	28-30	Bodily temperature more evenly distributed. Feeds well and ruminates better.
evening	104	40·5	26	
,, 4. morning	92	39·7	24	Urine slightly effervescive. Resistence greater.
evening	92-96	40·5	28	
,, 5. morning	100-104	40·3	28-30	
evening	96-100	40·2	28	
,, 6. morning	92	40·8	30	Systole more readily felt.
evening	96	41·3	28-30	Temp. of extremities changeable. Rumination frequent.
,, 7. morning	92	40·1	28	
evening	102	40·5	28	
,, 8. morning	100	41·1	30	
evening	88-92	40·7	32	
,, 9. morning	96-100	40 6	24	Urine alkaline, but does not effervesce upon the addition of acids.
,, 10. morning	88	40·7	24	Animal frequently sneezes, and there is a serous discharge from both nostrils.
,, 11. morning	106	40·6	30	
,, 12. morning	88	40·3	24	
,, 13. morning	88	39·8	32	
evening	92	40·2	28	
,, 14. morning	92	39·6	28	
evening	88	40·8	30	
,, 15. morning	88	39·9	24	
evening	92	39·6	24	
,, 16. morning	84	40·1	28	
,, 17. morning	106	39·3	32	Appetite not so good.
,, 18. morning	96	40·4	28	
,, 19. morning	98	39·8	24	
evening	104	40·2	24	
,, 20. morning	104	40·1	24	
,, 21. morning	84	40·2	28	Appetite and rumination good. Urine alkaline, and effervesces upon the addition of an acid.
,, 22. morning	92	40·0	24	
,, 23. morning	96	39·8	28	

Although the animal possessed a fair appetite during this time, yet it gradually wasted; but no signs of œdema, diarrhœa, or icterous pheno-

* The temperatures, etc., were taken before eight o'clock in the morning, and before four or after five in the evening.

mena were present, nor was there any increased sensibility in the region of the liver. The general appearance and movements were decidedly better than when the observations began.

The animal was bled to death on February 23rd, and the autopsy was carried out directly under the supervision of Prof. Dr. Bollinger, with the following results:—Body emaciated; a slight serous exudate flowed from both nostrils. About a quarter of a pint of serous fluid was found in the thoracic cavity; pleuræ smooth and glistening. The lungs were swollen; in the supero-posterior part there was a sub-pleural nodule about the size of a hazel-nut; on the posterior part of right lobe there were two firm greyish-opaque, splenified places about the size of almonds, and on the medial (internal) surface a few hæmorrhagic patches about 2-6 mm. in diameter. The lungs crepitated when cut, and solitary grey nodular patches were detected upon the cut surface, as well as hæmorrhagic spots resembling those under the pleura, but no erratic flukes could be detected microscopically. The mucous membranes of the medium and small-sized bronchiæ were covered with a frothy and somewhat tenacious matter, but no filariæ were to be seen.

In the heart some sub-endocardial petechiæ were present. Abdominal cavity contained about a pint of yellow serous fluid. Right lobe of liver enlarged, and had an obtuse border; left lobe atrophied. Lymphatic glands enlarged to about the size of walnuts, greyish in colour, and tolerably firm; capsule of left lobe discoloured, greyish-yellow, cloudy, and possessed numerous coarse granular contractions. On the surface of the left side of liver there were numerous flat, elevated, uneven protuberances of connective tissue, also contractions, and several small sub-capsular, irregular-shaped hæmorrhagic spots, about ½-1 cm. long by 1-2 mm. broad, in which occasionally flukes 10 mm. long were found with the head protruding into the hæmorrhage, whilst the remainder of the body usually had to be drawn out of the hepatic duct.

When the liver was cut in the vicinity of the large ducts, it was firm, and even grated in the left lobe. In the latter (left) the connective tissue-thickening was most developed, giving it the appearance of cirrhosis; this was not seen in any other part. The other parts of the cut surface presented a granular appearance of a pale-grey colour, anæmic, and the lobules sharply defined. In some places small cavities containing a sanguineous matter were to be seen, about the size of hemp-seeds. Numerous parasites were taken from the bile-ducts, embedded in a thin, dirty, brownish-green matter. The ducts of the left lobe were completely plugged by the *Distoma hepaticum*, most of which were from 14-22 mm. long, and laid with their heads towards the hilus. Some of the larger ducts were enlarged and contained ten or more parasites collected into one cluster; the walls of these ducts were thickened, the mucous lining swollen and inflamed (catarrh). The portal vein contained recent blood-clots; the gall-bladder was moderately well filled with a dirty, brownish-green, tenacious bile, and contained a number of sexually-mature *Distomata*, and many ova. Nothing of importance was seen in the remaining abdominal viscera, except two examples of *Cysticercus tenuicollis*.

I will now endeavour to point out the more important features of the results of these examinations, and it will be advantageous if I first allude to the time of invasion of the entozoa. Gerlach says it generally occurs from July to September—*i.e.*, towards the end of summer. According to Johanni, meadows are dangerous from the end of summer to the commencement of frosts. The incubative period (*i.e.*, the elapse of time between the reception of the young flukes and the advent of disease) in young animals is, according to Zürn, from one to one-and-a-half months. Gerlach says it may possibly be six weeks, but may also extend to three months or longer.

Leuckart considers that the fluke, whilst wandering in the liver, rarely measures more than 1 mm., and requires about three weeks to become fully developed and sexually mature, as it is found in the biliary ducts.

Gerlach has divided the course of "Rot" (*Cachexia icterico verminosa*) into four stages :—

1st. *Inflammation of the Liver* (*Traumatic*) *or Hepatic Inflammatory Swelling;* and he thus describes it :—Liver hyperæmic, swollen, soft, surface smooth, having small apertures out of which a sanguineous fluid may be pressed, and around which Peritonitis is frequently seen. Small hæmorrhagic spots in the parenchyma. Parasites of various sizes, rarely mature. Bile more or less mixed with blood. Rarely any serous exudate into the abdominal cavity. This stage generally occurs between July and autumn, and is not easily (if ever) diagnosed during life, but is sometimes detected after death from Apoplexy.

2nd. *The Dropsical Stage* occurs in about six or twelve weeks—viz., from September to November, and even as late as December. Emaciation and weakness are not yet very apparent if the animal is well fed. Death seldom occurs. Liver is pale, firm, and not yet atrophied. Flukes are fully developed.

3rd. *Emaciation Stage.* This is the stage at which the disease has reached its maximum, and causes the greatest mortality. The liver becomes atrophied in various degrees ; sometimes total disappearance of one or other of the lobes, and sometimes there is serous effusion into the cavities of the body. This stage generally occurs about three months after the reception of the parasite germs (January or February).

4th. *Migration of the Flukes.* This generally takes place from May to July.

When we consider the circumstance that many animals were known to be ill, and many had died, long before the above three animals were sent to the school, we may conclude that the invasions must have taken place at different times in the various animals. This, of course, was possible, and would quite correspond with Gerlach's views of the matter.

The striking dissimilarity in the development of the *Distoma* (even in the ducts) in our two first cases—some being only 3 to 4 mm. long, whilst others were sexually mature—may be accounted for *by repeated invasions in the same animal at different times.*

The principal results of the necroscopical examinations on January 31st and February 3rd (the disease being in what Gerlach calls the first stage), were that many of the parasites were very small, and therefore we may assume *that these animals must have been invaded unusually late.*

It cannot be doubted that the young flukes were derived from the meadow, especially as it offered every facility for the development of the *Cercariæ;* and, moreover, another flock which was turned into the pasture subsequently became affected.

From the examination of the two sheep, and our experience that young sheep give evidence of disease quicker than old ones, together with the fact that they were exposed to the invasion late, it is interesting to know that these animals, although first brought into the meadow as late as December 14th, yet became diseased. And it should not be forgotten that in the same year we had 4° to 6° of cold between the 15th and 20th of September—removing, one would think, all possible chance of invasion ; but we see from the above cases it was not so, and the frosts seemed to cause no injury to the life or development of the flukes.

With regard to the influence which breed and age has in resisting infection, it is a well-known fact that young, constitutionally weak, and ill-nourished animals, especially fine-wooled merinos, if placed under the same conditions,

suffer more than stronger, older, more robust, and well-fed animals of commoner breeds. Therefore, we need not be surprised that such animals show marked and intense signs of disease during life, although, relatively, few parasites are found in them after death.*

The intensity and danger of "Rot" depends upon the kind of parasite which invades the animal. The *Distoma hepaticum* is decidedly more dangerous than the *Distoma lanceolatum*, and Leuckart says this is due to the small, sharp, horny spikes which cover the body of the former, causing permanent injury to the parts with which they come in contact.

Few persons seemed to know of any deadly outbreaks of "Rot" caused exclusively by *D. lanceolatum*, except Leuckart, and it was believed that it did not abound in such large quantities as the *D. hepaticum*.

The three cases above described were exclusively due to *Dist. (Fasciola) hepaticum*, and this was undoubtedly the cause of the intensity of the outbreak.

Various opinions have been given by different authors with regard to the frequency with which the two species of Distoma are relatively met with. Gerlach found the *D. hepaticum* to predominate. Roloff, in one case, discovered hundreds of *D. lanceolatum*, and only a few specimens of *D. hepaticum*. Zurn found the *D. lanceolatum* almost exclusively in Thuringia; Feser and I found only *D. lanceolatum* in a flock of merinos in 1874 and 1876. In this flock they were present in such large quantities, that it appeared as if the greatly altered and sclerosed-looking liver, as well as the extremely enlarged and thickened bile-ducts from which the parasites could be scraped out in large quantities, was due to them; and yet notwithstanding all this, and the general disturbance which accompanied their presence, it was not clearly proved that they were wholly to blame. In these cases, as in those above described, we had completely developed examples of the parasite in December, as well as chronic alterations in the liver.

The symptoms alone, during life, can never be relied upon to fix a correct diagnosis. There is nothing characteristic in an animal having disturbances in the nutritive functions, paleness of the visible mucous membranes, diminished appetite and rumination, hydræmia, or the wool being easily separated from the body, etc. The temperature of the body is very changeable, quickly rising to a high degree, or falling again just as fast; but it must not be forgotten that only one-year-old sheep naturally have a high temperature. Siedamgrotzky found wethers from six to twelve months old to be about 40·2° C., and out of 284 measurements it was in ten cases about 41·4° C. If we had only had a proper rule by which to judge the results of the three sheep's temperatures—such as taking the temperatures of completely healthy animals from the same flock, but this was not possible—I believe we should have found our animals to have, at least at times, a fever temperature, especially Sheep No. 2. This was the only animal in which we detected acid urine. Other symptoms which are said by some authors to exist in the disease, were absent in our cases. For instance, there was no appearance of icterus (Gerlach could never detect this either), nor were there any indications of pain upon pressure in the region of the liver; neither was any enlargement present. The fæces were normal in form and consistence in all

* According to the report of my colleague (Herrn Bezirksthierarzt Gastciger, of Erding), all the animals on a certain farm occupied one field, and few cases of "Rot" occurred in the ewes, whilst in the young sheep exceptions were rare. On another farm close by, a number of two-year-old sheep were removed from a water-meadow and placed in this field from October 11th to 19th (*i.e.*, after the frost), and numbers of them became diseased, whilst a ram which was left in the water-meadow remained quite healthy.

the animals, *Distomata* being seldom found in those of Sheep 1 and 2, but frequently in No. 3. The excessive serous exudation into the abdominal cavity of Sheep No. 1 must have had considerable influence on the general progress of the malady, as was noticed by increase of pulse and respirations, and must always be looked upon as a grave complication, and might even cause death, or at least considerably hasten its approach.

The changes in the structure of the liver (caused by the parasites) were of recent date, excepting in Sheep No. 3, in which there was hyperplasia and contraction of the connective tissue; and most of the parasites had reached sexual maturity—phenomena which go to show that the disease had existed for some time. The left lobe of the liver was the part most affected in all three sheep, and nothing was discovered in the *post-mortem* examination which was not known before.

The small pin-head or millet seed-like openings found on the surface have been described by Will and Dietrichs, and the projection of small or large flukes from the surface by May. The hæmorrhagic spots have been noticed by Gerlach. Flukes under the serosa and in the enlarged hepatic ducts, causing destruction or degeneration of the hepatic parenchyma into a pulpy matter surrounding the parasites, have also been described by May.

The opinions as to the manner in which the *Distomata* find their way into the livers are various. Leuckart, Zürn, and others say that the encysted germ finds its way into the stomach, where the gastric juice dissolves the capsule and sets the embryo free to travel along the duodenum to the mouth of the hepatic duct, to which it gains access, and by this penetrates to the liver, where Schäffer fancied the bile might assist its passage in some way; while others, such as Gerlach, May, Will, Dietrich, Spinola, believe that the embryo, after being freed from its capsule by the gastric fluid, pierces the walls of the stomach or small intestine, the peritoneum and capsule of liver, and so obtains an entrance to the parenchyma, and from it to the hepatic ducts. What supports this idea is the fact that May found the smallest and youngest parasites under the peritoneal covering of the liver.

When we look at the results of the *post-mortem* examination of the three cases above described, we do not find anything to support the last view. On the contrary, we cannot consider the Peritonitis (Peri-hepatitis) which was present, to be the effect of the migration of the parasites from without, but, conversely, of their centrifugal migrations from within. In favour of these statements, I consider the breaking up of the parenchymatous tissue forces the parasites towards the serosa; for as this parenchyma is destroyed, so they travel on, uhtil we find them making the fine perforations on the surface of the organ.

Moreover, the relatively large openings in the capsule of the liver, the fresh coagulations of blood which were found mixed with the exudations, and the fact that the heads of the parasites were always found to be the projecting part from the surface of the liver, as well as our often finding fully developed *Distomata* in the abdominal cavity, all go to support this view.

If we accept the theory that the parasites gain access from the duodenum to the liver by means of the hepatic duct, we are compelled to consider the presence of the *Distomata* in the portal vein and in the degenerated hepatic tissue (which often assumes the appearance of distinctly formed cavernous spaces), as a peculiar diversion or straying from the ducts. We must first remember that the young flukes gain admission by the *Ductus choledochus* into the fine ducts, some of them—and evidently not a few—piercing the walls of the ducts while they are yet but slightly developed.

Leuckart has already propounded this view; for he says that the head-hooklets of the young *Distoma hepaticum* form a very good boring apparatus.

The following summary is given :—

1. The *Distomata* may remain in the bile ducts, undergo their normal development, and there become sexually mature, etc.

2. Some pierce the walls of the ducts, and gain access to the parenchyma of the liver, causing degeneration and even mortification. They may also even perforate the capsule, and gain admission to the abdominal cavity, giving rise to Peri-hepatitis or Peritonitis.

3. By destruction of the hepatic tissue, some others may get into the portal veins, and cause embolism, inflammatory irritation of the intima and thrombus.

4. Finally, others may pass into the hepatic veins and then (*a*) travel centrifugally into the right side of the heart, and from there to the lungs, producing hæmorrhagic centres, or cause the air passages to become filled with blood. After a time we find nodules, probably due, as Rivolta first described, on the first onset to encysted flukes. From an oral communication from Bollinger, we learn that he found in three lungs which he examined long after death (the livers of these animals from which the lungs were taken showed the usual parasitic changes), hæmorrhagic masses containing young flukes, and it is evident they must have been deposited there from the liver by the embolic process, through the hepatic veins, right heart, and pulmonary artery.

(*b*) Leuckart believed that the *Distoma* could gain access to the most distant parts of the body by means of both venæ cavæ, and cause abscesses in such parts.*

It must remain undecided whether another explanation would be more satisfactory than the last. If we cannot receive the supposition that the *Distomata* pass by the right heart into the lungs, and from there to the left heart by the capillaries—which, by-the-by, are evidently too small to allow them to pass in any form—we must turn our thoughts into another groove; and when we consider the structure of the parasite, it will not be unreasonable to conceive its piercing the walls of the vessel and wandering. This notion is supported by the fact, that we find the parasites under the pleura, etc., they might find their way into the pulmonary veins, and then (perhaps passively by the blood current) pass to the left side of the heart, and from there travel to the peripheral branches of the arterial system. The so-called "fluke-abscesses" have, as yet, never been detected in domestic animals; still it is quite possible that they have been overlooked. The Apoplexy described by Gerlach in the first stages of the disease, at least furnish us with the idea that is possible, and that such may be due to the migration of these embyros.

If we accept the idea of invasion taking place by means of the *Ductus hepaticus*, we cannot so clearly account for the peculiar wanderings and dis-

* Such peripheral abscesses have up to the present, however, only been observed in the human subject. Leuckart, when speaking of the migration of the parasite, says that flukes were found in the vessels by old authors. Duval found a young *Distoma hepaticum* in the portal vein, and four or five others in its branches. He supposed they wandered from the ducts, although no other traces of parasites were found in the liver, and they could only effect their passage after the head-hooklets had become developed. According to Leuckart, flukes can gain access to the hepatic veins, and from there travel by both venæ cavæ to the most distant parts, and then cause abscesses; and he endeavours to explain cases where flukes have been found in peripheral abscesses—such as in the planti pedis (Giesker), on the occiput (Harris), on the posterior part of the ear (Fox), in the right *Regio hypochondriaca* (Dionis). In all of these cases the parasite was observed to be young and imperfectly developed; the explanation of which Leuckart believes is, that the fluke does not come to perfection external to the liver. Davaine's idea that the entozoon lives in the vessels from the commencement to the end of its career, the author doubts.

tribution of the young flukes in the liver; for we know it is only in the ducts that the parasite attains its sexual maturity. On the other hand, it cannot be denied that they are capable of piercing and passing through the wall of the duct, for we have ourselves often seen the heads of tolerably well-developed specimens just piercing the wall, whilst the rest of the body was free. It would be quite another matter if they gained access as the Echinococcus embryo is said to do (Heller), by means of the veins of the intestines, mesentery, and portal vein; if this was the case, we should expect to find at least the evidence of their passage, and their more general distribution.

Finally, as regards the expulsion of the parasites, Gerlach says he has never found them in the gall-bladder during the winter; but according to him they leave the host from May to July. Those sheep which were examined in December, 1874-6, contained a large number of parasites in the bladder, and even in the duodenum; and in Sheep No. 3 of our own which died on February 3rd, several sexually mature parasities were found in the gall-bladder. Pech (*Thierarzt*, 1873, p. 87) also observed the parasites leave the liver in autumn and winter, and concluded that it was not necessary that they should remain in the liver for three-quarters of a year, but that they can leave earlier, perhaps after their sexual function is completed; or they may remain longer than eight months. So it is possible that those which he found in the autumn might have entered the body the previous autumn.

From our experience with the ten-months-old sheep (No. 3), it would appear to support Pech's first view.

HORSE-POX IN MONTREAL.

WE learn that towards the end of February last there was a very remarkable outbreak of Equine Variola in Montreal, as many as fifty cases being reported to Professor McEachran in one day. As usual, the eruption was mainly confined to the mouth, heels, and inside the thighs, about ninety per cent. having the heels chiefly affected. In many cases the eruption was confluent, and the resulting sores extensive and troublesome. One veterinary student and six grooms had become inoculated through scratches or wounds on the hands, well-defined pustules resulting. We would suggest that vaccination be attempted with those persons who have been accidentally inoculated in this way.

ABORTION IN COWS.

BY PROFESSOR STOCKFLETH, COPENHAGEN VETERINARY SCHOOL.

(*Continued from page* 195.)

THE cause which predisposes such a cow to abort the next time she becomes pregnant, is partly due to the changes the uterus has undergone, from the decomposition of the fœtal membranes when she last aborted, producing an indisposition to accommodate itself (by extension) to the growth of the fœtus; it is also possible that the animal still lives under the same stimulating circumstances as before. That the exciting cause can be associated with the locality, is proved by the fact that freshly-purchased cows abort when they are placed in stables in which abortion has previously occurred; and strange animals are more predisposed to this influence than those already kept in the stable—especially so if they are pregnant for the first time, the rule being, if a cow aborts once, she will generally do so a second time.

The reason why farmers' cows are more subject to abortion than the peasants, is partly due to using near-related or unsuitable—too young and weak—bulls, but the bull cannot in all cases be blamed. It is a commonly acknowledged fact, that cows which are put to old bulls are very likely to abort; and I am acquainted with a gentleman who was formerly very partial to using large, aged bulls, but has recently altered his opinion, because he had so many cows abort. Some breeds, as shorthorns, when crossed with others, are supposed—and not without foundation—to cause abortion. A landowner put thirty of his cows to a prize shorthorn bull (Yorkshire breed), and twenty of them aborted; similar cases have been reported to me from various sources. Kretzschmar's* observations upon this point are very interesting. He says that on one farm a large number of peculiar cases of abortion occurred, the bull (which was the offspring of a cow which had aborted several times, and nearly every time retained the fœtal membranes) seemed to inherit the peculiarity in some way, for nearly all the cows which were put to him aborted and retained the fœtal membranes; therefore the bull was rejected as useless, and no more cases of abortion were seen. In these cases the young were healthy, but the membranes were diseased. It is a general opinion that the death of the embryo is due to disturbance of nutrition on the mother's side; but it appears from various observations that the fœtus itself may become diseased, and produce its own premature expulsion. For instance, Sempastour found volvulus of the intestine in a fœtus which had been aborted from a mare; in another he found Enteritis present; in a third he perceived the small intestines and cæcum filled with Ascarides. Therefore it is evident that we must give due consideration to such cases. The emaciated condition in which the young creature is usually found, gives one the idea that it died from deficient nutrition, but this is not always due to disease of the embryo itself.

The death of a fœtus does not make it absolutely necessary that the mother should abort, and as a rule the fœtus is expelled later on; so that when it is born it is generally decomposed, or birth may not take place at all. When cows, on account of their barrenness, are fattened and killed, we often find a dry, mummified-like fœtus (Steinkalb) in the uterus, although it is true these are rare cases.

In the foregoing we have mainly confined our remarks to the causes of abortion which relate to the cow herself. We will now consider what may be called the external causes, or those relating to management, etc., under which milch cows live; and I think you will see that we shall be able to throw further light upon its origin.

It has already been mentioned that cows may abort whilst grazing in open fields, and that it generally commences to take place while they are being driven to the pasture; and this predisposition not only lasts while they are grazing, but also continues after the animals are again brought back to their sheds for the winter.

It is a fact that cows when first turned into grass partake of it greedily, very often producing Tympanitis, which may cause pressure upon the diaphragm; hence less space for lung-action, the consequence of which is carbonition of the blood, which must be, and undoubtedly is, dangerous to the life of the fœtus. When abortion takes place in autumn it is generally due to the cold, raw weather and innutritious grasses; when the grasses are abundant, we must look upon abortion as being the result of the animals being exposed to the wet and damp ground upon which they have to lie in autumn weather.

We know from experience that mares often abort from being exposed to unfavourable weather and insufficient nutrition. During the Franco-Prussian

* Bericht über das Veterinarwesen im Königreich Sachsen für das Jahr 1876.

war, in 1870-71, a regiment was placed on the Belgian frontier, for which purpose a large quantity of remounts were bought, amongst which were many pregnant mares, although their condition was not detectable when purchased. Their work was very laborious, the weather bad, and the food insufficient and not of the best quality; the consequence was, that eighteen mares "slipped foal" after they had been in quarters for a fortnight, where they were to receive care and attention. The young were very emaciated, the flesh pale and flabby, and the blood thin.*

In Germany we have had the same experience. Staff-V.S. Friis reports that several of the mares which retreated with the wagons from the Danish army in 1864, aborted from the cold and hunger they had to endure.

Abortion in autumn is due, no doubt, to the innutritious food causing a watery condition of the blood (Hydræmia) and badly nourished tissues; and when it occurs later on, after the animals have been removed to their sheds, it is unquestionably due to the sudden change from a poor to a rich and stimulating regimen, for the milk secretion is suddenly increased or congestion of the uterus follows; during such disturbances in the circulation abortion may take place.

When abortion occurs as an epizoöty, it generally arises from some widespread unfavourable influence, as, for instance, wet seasons producing bad harvests, by which the food is damaged by being soaked with rain, and afterwards turning mouldy or decomposed. Continual rain, etc., washes out all the bitter and aromatic principles, as well as the sugar and soluble salts, so that the food loses its nourishing qualities. Mould and decomposition destroy the albuminous matter, and the food is not only depreciated in its nourishing properties, but is even poisonous. In both cases we see that stall-feeding may continue the non-nutritive feeding which began with the autumn grasses. When food is mouldy and decomposed, and has a bad odour, which is generally the case in damp, mild winters, it causes abortion from want of nutritive properties. Dry-mould is not so bad as the moist, in its action upon pregnant cows; as Langbehn, from several years' experience, says he has seen cows partake of mouldy hay and straw without any apparent ill-effect; but we can hardly think such could be the case, for it is a common occurrence to see mouldy food cause irritation of the kidneys, Polyuria, and great thirst. The partaking of too much cold water may cause abortion, by cooling the stomach and other organs of the abdominal cavity, including the uterus, in which it causes Anæmia. The same is the case when cows are stall-fed during the night and turned out to graze on the cold grasses during the day, or when fed in the stable upon icy-cold roots. Mainz saw six cows abort after being fed upon frozen cabbages. Hansen's experience with frozen rapé is similar.

Because cows frequently abort about the time when rye becomes ergotized (*Secale cornutem*), it is generally believed to be due to the animals eating it; but it is thoroughly well proved that ergot of rye only causes contraction of the uterus when labour-pains have already appeared, and if this is not the case the ergot is inert. In the Dresden Veterinary School, 210 grammes of ergot of rye were daily administered to a cow with impunity.

Fright and external violence may cause abortion, and ought not to be forgotten when giving prophylactic rules for this evil; but of course this never causes enzoötic and epizoötic abortion.

We will now consider the influence of infection in spreading this malady. It is thoroughly well known that owners of stock, and some veterinarians,†

* M. Jules Gerard, Avortement Enzootique. Annales de Medicine Vétérinaire de Belgique, Bruxelles, 1871.

† See, among others, Boratning om Dyrlangeforaningens Möoa. Bd. 5, s. 239.

consider it infectious, but they are not unanimous as to the nature of the contagium, or the mode and manner of its action. Zundel says that it is due to a fungus (*Penicillium glaucum* and *Aspergillus*), which forms in the fœtal membranes from decomposition after the birth of the calf, and becomes expelled with the vaginal discharge, and bringing this fungus in contact with pregnant animals (according to Professor Frank) causes abortion. The contagious nature of this secretion is supported and confirmed by Professor Roloff, for he says that reddening and swelling of the vaginal mucous membrane always precedes abortion. Brauer has taken some of the vaginal discharge from a cow which had given premature birth to a calf, and introduced it into the vagina of a pregnant cow, and abortion followed in nine days. In other cases the cows did not slip their calves until from the eleventh to the fifteenth day.

It is supposed that pregnant cows lie upon the straw, excrement, etc., of animals that have aborted, and the infectious matter adheres to the vagina. This idea is supported by the fact that uncleanliness increases the number of cases.

I think we ought to be very cautious in receiving such theories: they are certainly consoling, inasmuch as they satisfy people's minds, and prevent them from seeking for other causes, but on this account they are very injurious. There is no doubt these low organisms are formed when the membranes are retained and decompose, but we do not always find abortion occur in other cows when this is the case. My own experience is, that abortion does not occur from cow to cow, but passes indiscriminately from one end of the shed to the other, attacking first one and then another. Further, one is not sure that fresh cases will not occur, even if the animals which have aborted are instantly removed from the shed. On the other hand, it would not be right for us to deny the possibility of contagion in these cases; we must therefore explain it in another way. From the decomposition of the membranes and the ichorous fluid formed, we find fœtid gases and Bacteria develop, as well as other microscopical fungi; and since these can mingle with the air of the shed, it is evident that cases might occur in proportion to the uncleanliness and ventilation of the shed, and the number of animals which have aborted in such shed. The relations are analogous to what takes place in lazarettos, in which patients lie with large, dirty wounds, and in consequence develop malignant hospital diseases; and the possibility that abortion may be caused in a similar manner is quite within reason. But there are many other modes of infection to be considered, which might apply equally well in these cases, before we can put any confidence in the ideas of Zundel, Frank, and Roloff.

It is evident that the disease does not cease by any of the necromancing, or the so-called sympathetic agents, such as hanging pebbles, dead magpies, or killed foxes, in the stables; yet, even in our day, we find some people explain the disappearance of cases to these stupid agencies, and the only answer they give us when questioned upon the point is: "Well! they do no harm, if they do no good." But it is clear that men would not resort to such means if they had no faith in them. If anything is to be obtained to counteract cases of abortion, we must work rationally, and not tire or become impatient even if our endeavours prove unsuccessful.

We will now endeavour to sketch out a plan to enable us to overcome this evil, which will be much easier if we bear in mind the causes above given.

Above all, we must avoid milking pregnant cows too long, and especially those animals which have only had one calf. Abortion in heifers is a great loss, and should receive our best attention to endeavour to prevent cases occurring. M. Hillerup has communicated that he has had fewer cases of abortion in heifers since he began to dry them earlier. At a meeting of an

agricultural society, it was propounded that heifers should not be allowed to calve before they were two and three-quarters to three years old, and this was qualified by the further statement that a certain gentleman allowed his heifers on one farm to calve at two years old, whilst at another he kept them till three before they calved. On the first farm he had twice as many abortions and barren cases as he had on the other, although they were fed and treated in exactly the same manner. This statement, however, met with general disapproval, for they all thought that it was necessary for the management of the farm to have heifers calve early in spite of the losses from abortion.*

When cows are first turned out to grass, they should not be hungry, nor should the fields be covered with dew, and the herdsman should receive instructions to watch them frequently, and if any should suffer from Tympanitis they must be removed to the shed again. On one farm there were formerly several cases of abortion soon after the cows were first turned out to graze in July, but now those which aborted the previous year, as well as the heifers—especially those with the second calf—are turned into less luxuriant pastures, and abortion has ceased. Cows ought not to remain out too late in the autumn, but they should be brought up into their stalls, at least for the night, as soon as the weather commences to become cold; for if allowed to remain late in the season they either catch cold or become emaciated, both of which, as we have previously explained, are causes of abortion.

When cows are first changed from pasture to stall-feeding, it ought to be done carefully, so that no derangement of the digestive organs is produced; thus for a time they ought to receive their liberty for exercise and water. The water should be fresh and good, but not cold. Eletti reports a case where abortion ceased in a herd as soon as the water—which came from a field manured with guano, and contained a large quantity of organic matter —was changed. Cows which have just been taken from the autumn grasses, as well as poor pregnant animals freshly purchased, should be fed regularly, and the food should not be of too stimulating a character. When they have been fed in the stall for some little time, and become used to the feeding, they may receive more and better kinds, but at the time of calving it is advisable to lower the feeding again.

Pregnant cows should have the best food possible—all damaged, mouldy, and musty fodder should be rectified, if possible; all the worst should be destroyed; the rest may be exposed to the sun, and mixed with a little salt before being given to the cows. Corn ought also to be added, with bitter and aromatic substances, to keep up the strength of the animal. Food may appear to be wholesome to the unaided eye, and still contain some deleterious substances which will cause abortion. Thus Sjöstedt† mentions a case where abortion occurred whenever the people bought their oil-cake from a certain dealer, which was supposed to be cheaper than could be purchased elsewhere. One gentleman, who had two farms, bought this cheap cake for one, where he had several cases of abortion, whilst his stock at the other farm received cake from quite a different source, and remained perfectly healthy. Therefore Sjöstedt was of opinion that the cake contained mustard, because the mucous membranes of the eyes and mouth of the cows were affected.

From the fact that cows which abort always cause greater restlessness to

* "Ugeskrift for Landmänd." 1668. II., s. 49.

One farmer, who had sixty-eight cows, had twenty-eight abort between June and October. These cows had connection with the bull in March, and were then turned upon good clover, which caused a considerable increase in the quantity of milk secreted; and I think there can be little doubt that this was the cause of the abortions, aided, perhaps, by the cold, wet weather which was present in September and October of the same year.

† Tidskrift for Veterinärer og Landhus höllere. Stockholm, 1876.

their neighbours than cows which calve normally, it is advisable to remove a cow as quickly as possible from the others, and isolate her until she is convalescent and all vaginal discharges have stopped. It is also advisable not to let her have the bull again too soon. M. Ammpen (veterinary surgeon, in Holt, Schleswig) says that if cows are allowed the bull soon after they have given birth to a fœtus, they are very likely to abort again; therefore he always made it a practice not to allow the cow to be bulled until after the proper period of normal calving was over. Besides this, the practice is useful to allow time for the uterus to recover its natural condition.

All disturbances, pressure, blows, etc., to the abdomen should be avoided. Therefore, great care is required when the animals are set free for exercise or water; it is also essential that they should have sufficient bedding. Solution of arsenic when applied to the skin kills parasites, but it also frequently causes abortion.

Sheds in which cows have aborted should be well cleansed with a solution of chloride of lime to prevent the air becoming foul, etc. When the cows are out of the shed all the windows and doors, etc., should be left open to admit fresh air; and in bad cases, where a number of animals abort at the same time, they should be removed from the shed, which should then be washed with chloride of lime, and fumigated with chlorine vapour after closing all crevices.

HUMAN AND ANIMAL VARIOLÆ: A STUDY IN COMPARATIVE PATHOLOGY.*

BY GEORGE FLEMING, F.R.C.V.S., ARMY VETERINARY INSPECTOR.

(Continued from p. 192.)

IT has been stated that Cow-pox is now a very rare disease, and that the probable cause for its being more frequent in the days of Jenner was the much greater prevalence of Small-pox; thus leading to the inference that the one disease was dependent on the presence of the other. But this statement will not bear close examination. We have no definite evidence to prove that Cow-pox was a common disease before vaccination became general, nor yet that it is a very rare malady now; still less that its frequency had any relation to the occurrence of Small-pox. We have only the testimony of Jenner, and two or three other observers of the early part of this century, and they may have witnessed merely local outbreaks, such as occur now and again in different countries. It appears to have been known from time immemorial, and was certainly so in India, Persia, South America, and the continent of Europe long before the time of Jenner. But it had not been studied until Jenner's discovery, and its presence may have often been overlooked, or it may have been confounded with other bovine disorders. Soon after the announcement of the protective influence of vaccination on man, Cow-pox was sought for and found at Castres, Nancy, Metz, Strasbourg, and Rambouillet, in France, as well as in various parts of Italy, Prussia, Spain, Wurtemberg, Holstein, Denmark, and elsewhere in Europe. That Cow-pox did appear, and that it was, perhaps, somewhat common in that part of Gloucestershire in which Jenner resided, and indeed in many places in England, is not at all denied; but that its prevalence was owing to Small-pox being rife, is opposed to all clinical and experimental evidence. Small-pox is transmitted with difficulty to the cow, and does not produce Cow-pox, as I have already asserted. If Cow-pox was more common a century ago than at present, this may be due to the greater care bestowed upon cattle in their dwellings, and more general

* From the *Lancet* for February 14th.

good management now than formerly. Dairies are kept cleaner and more wholesome, and people who milk and go among cows are more proper in their own persons than they probably were years ago; consequently, if a case of Cow-pox does appear, it has not the same facilities for transmission to other cows. This transmission appears to be mainly effected by the milker; the vesicles, being chiefly localised on the udder or teats, are ruptured in the act of milking, and the virus on the dairymaid's hands is transplanted to the lacteal apparatus of the cows she next milks. Sores are frequent on the teats, and the presence of these renders vaccination all the more certain. It is very unlikely that people affected with Small-pox would work in dairies, and still more unlikely, if they did so, that they would infect the cows. If Cow-pox could be produced through the medium of diseased dairymaids, it ought to be more common now than before vaccination was introduced, seeing the great difficulty with which Small-pox is transferred to the cow (when it does not produce Vaccinia), and the readiness with which this animal is vaccinated.

If Small-pox could accidentally give rise to Cow-pox, surely evidence of this would be forthcoming at the present day, when we have frequent, severe, and extensive outbreaks. There are certainly instances recorded of this so-called accidental transmission, observed many years ago, as well as coincident outbreaks of Cow-pox in localities where Variola was prevalent; but these instances are so very few, and depend, seemingly, upon such a mere chance, that they cannot be accepted as affording reliable proof of the actual possibility of such transmission; while the fact that Small-pox prevails intensely over wide districts at times, without Variola being observed in the bovine or other animal species, as well as the other fact, that Cow-pox is observed here and there—individually, sporadically, enzoötically, and even epizoötically—without, however, Small-pox being observed, goes far to negative the likelihood of accidental transmission.

That Cow-pox may be a less frequent disease in this country than formerly, is quite possible, and, for the above reasons, very probable; though in this respect England would not be an exception, for the veterinary professor, Spinola, mentions that it was a somewhat common malady towards the end of last century all over the German littoral of the Baltic, but to-day it is rare. Like all other diseases of this kind, however, it would appear to have its periods of subsidence and recrudescence. Neumann states that in Holland, in certain years, it was seldom seen, while in others—as in 1805, 1811, and 1824—it was rather frequent. Ritter says that in Schleswig-Holstein it is always present to some extent, but that in some years it assumes an epizoötic form, and is propagated from herd to herd—as in 1824, 1826, 1829, 1830, and 1832.

Now and again, too, we read of isolated outbreaks in different countries, which attract attention because of the large number of animals affected. The most recent of these is that recorded by Professors Oreste and Sabbatini in 1876 (*Gazetta Medico-Veterinaria*), as occurring among a herd of buffalos, more than two hundred of these animals, young and old, being attacked. The eruption in the cows was chiefly confined to the udder and teats, but the sucking-calves had it on the nose and lips. The pigs which consorted on the same pastures were not infected. The eruption was typical. According to the *Deutsche Zeitschrift für Thiermedicin* (December, 1879), Cow-pox appeared as an epizoöty in the summer of 1876, in the vicinity of Reykjavik, Iceland. It had never been seen there before, and caused very great alarm; all the milch cows became progressively affected, and in several instances milkers got inoculated in the hands. Neither in this, nor any other of the outbreaks mentioned above, is any allusion made to Small-pox being prevalent in mankind.

In this country we have no means of arriving at any conclusion in regard to the extent to which it may prevail, as no reports are called for by Government, and veterinary surgeons are seldom, if ever, required to attend cases of Cow-pox, these being usually so trifling. Indeed, it is not at all improbable that many pass unperceived, and those observed are not mentioned by dairy-keepers or milkers, or they may look upon the eruption as analogous to that which is sometimes seen on the teats or udder after parturition. The vesicles are broken, too, almost before they are developed, in the act of milking, and the sores which result are considered to be only simple abrasions or fissures, so common in this region. Therefore it is that there are very few veterinary surgeons, even of those practising in the most populous cattle districts in this country, who have ever seen a case of Cow-pox. But we see no reason for thinking that the malady is much less common here than elsewhere—say in Wurtemberg, where the Government reports, drawn up by district veterinary surgeons, are very full and complete, and where rewards are offered for every case of Cow-pox from which children can be vaccinated. According to Hering (*Repertorium der Thierheilkunde*), in Wurtemberg, during the ten years from 1827-37, there were sixty-nine cases out of eighty-four which furnished an excellent vaccine lymph, and 152 out of 208 cases in which the lymph did not yield such satisfactory results; making in all about thirty reported cases every year. In 1873, there were thirty-nine cases, from which fifty-two children were successfully vaccinated; the cases were most numerous in April (18), May (13), and June (8), and one instance of accidental infection was reported—a farmer's wife, who had milked a cow in which the pustules had arrived at maturity, had a vaccine vesicle on the thumb. In 1874, twenty-four cows and four heifers were reported, but complaints are made that the information with regard to these came too late to make many of them available for vaccination—the pocks being either in the last stage, or ruptured, and only sores remaining. Nevertheless, lymph was procured from twelve, and with this twenty-five to thirty children were successfully vaccinated. Some interesting details are given with regard to these cases of Cow-pox, one of which was an example of *Variola succineæ*. Surgeon Löffler, of Rottenburg, received on April 20th, one of the heifers—a two-year-old animal, twenty-five to thirty weeks pregnant, and very healthy. On the two posterior teats of the right side were three fine pustules, and on the last teat of the left side was another. On opening these a yellowish glutinous fluid escaped. On the 23rd, new pustules appeared. The udder and teat were hot, and on the latter were several small and large oval pustules, each with a red areola. When opened there flowed a yellow thick lymph from them; there was a very small quantity of clear lymph at the end. Two children were inoculated by puncture, and an additional quantity of lymph mixed with tepid water, was poured into the wounds. In one child there were developed four perfect and fine (*Vollkommen schöne*) silver-hued pustules, and in the other child one pustule. From these two children five others were successfully vaccinated. Another similar case is related by Dr. Kieser, of Gmünd, in which the cow was three years and a half old, and yielded lymph with which three children were vaccinated, and from these a large number. The details of these cases are full of interest, but I cannot dwell upon them here. I may mention, however, that among the cows were two cases of *V. vacc. nigr.* In 1875, twenty-three cases of genuine, and seventeen of spurious Cow-pox were reported. Nine of the former yielded satisfactory inoculations in children, and the owners of the animals were consequently rewarded. One cow was reported to have shown a succession of genuine pocks for two years; it was seven years old, and was pregnant with the fifth calf. On the udder, on April 14th, were a number of pustules, from the size of a pea to that of a kreuzer, surrounded by a red border, and containing a partly watery-looking and

partly milky-looking lymph. In the course of the next day the pustules became desiccated. On April 24th, four new pustules were seen, these soon became encrusted, and were succeeded by others which were merely abortive pustules, and the case continued under observation for some time, not as one of Vaccinia, but as one of Chronic Pemphigus. In 1876 it is again complained that cows were only reported as affected with pock when they became visibly unwell, the secretion of milk diminished, and the teats so swollen and sore that milking was impossible. There were forty-six cases reported, twenty-one of which were genuine, and twenty-five spurious. Successful vaccinations were notified in a number of children, as well as some instances of accidental infection. One of the latter was a girl who daily milked a cow which had calved fourteen days previously; three teats of the animal had sores and pustules on them, and the girl inoculated her nose through scratching it while she was milking. In 1877 it was very prevalent, especially in July and August; in many cases difficulty was experienced in milking the cows, the mammæ often requiring to be relieved artificially, and Mammitis being frequently observed as a complication. Several cases were timeously reported, and accidental inoculation of people was noted. In the ambulatory clinic of the veterinary school there were 106 cows affected with ordinary Cow-pox during the year, and eleven with the tubercular or nodular form (*Knotenförmigen*). In 1878 thirty-six cows and two calves were reported, but in consequence of reaching them at an unfavourable period, lymph was collected by the district veterinarians from only five cases; this was successfully utilised. The Minister of the Interior had offered a reward of twenty-four marks to owners of cattle for every animal they timeously reported as suffering from Cow-pox.

None of the other German States include this disease in their reports. Belgium has issued recently a Health Report of Animals ("Etat Sanitaire des Animaux Domestiques"), published in the Bulletin of the Conseil Supérieur d'Agriculture. In that for 1877, I find that at Châtelet there was an outbreak of Vaccinia among dairy cows; but when the veterinary surgeon saw them the attack was subsiding, and on the cows still affected the pustules were either broken or dried up. Before the eruption appeared the cows gave an abundance of milk, and were grazing in the fields. At Wommen a large number of cattle were affected with Vaccinia, and the same reporter mentions pigs as being affected with Variola in the same district.

Cow-pox appears in the Danish Health of Animals returns; and I observe that in 1875 there were included in the returns twenty-six cases of natural Cow-pox throughout Norway, while in 1878 there were reported 581 cases in sixty-nine localities, forty-five of these being in Northern Seeland. They occurred, as in other countries, all the year round, but were most numerous towards September.

I have taken the liberty of bringing forward this evidence to prove that Cow-pox is not an extinct disease; that the chance cases reported in such small countries as Wurtemberg, Belgium, and Denmark amount to a considerable number in the course of the year; that there is ample clinical and experimental proof that the malady is really Vaccinia, and has no relation whatever to human Variola; that the presence of the disease in isolated cases, or in a sporadic condition, gives it the power of assuming an epizootic form when circumstances permit; and that, although it is more or less denied that Cow-pox exists in this country, there is every probability that it is at least quite as common as in Wurtemberg, though perhaps less so than in the days of Jenner.

With regard to the localisation of the disease in the cow, it is quite true that the mammæ and teats are the special seat of the eruption, just as the mouth, lips, and limbs are the ordinary situation of the Horse-pox. Never-

theless, cases now and again occur in which, as also in the horse, the eruption is not limited to the usual parts, but appears on the muffle, nostrils, and other regions where the skin is thin and the hair scanty. Pilger, D'Arboval, and other veterinarians testify to this, as also do the Wurtemberg reports. But the eruption is very far from being general over the body, even in these instances.

The female sex of the animal has been brought forward as an argument in favour of Cow-pox being communicated by the hands of persons affected with Small-pox. But it is quite forgotten that there are more cows than bulls or bullocks; that they are generally completely under observation in cowsheds; that when in milk their teats are constantly handled, and therefore the eruption can be felt and seen, while inoculation from cow to cow is made all the more easy, and the disease, consequently, much more diffused than it would otherwise be. With the bull or the bullock, on the contrary, there are none of these opportunities for observation or extending the contagion. The bull is seldom indeed with the cows, and then only for a brief period; while the parts which might be the seat of eruption are rarely handled, and perhaps never examined. The bullock is still less, perhaps, exposed to contagion or submitted to examination. But I entertain no doubt whatever that both the bull and the bullock do suffer from Vaccinia, and it is quite ridiculous to imagine they do not. Male bovines have been largely employed in vaccination experiments on the Continent, and the vaccine lymph has acted as promptly and effectively on them as on the cow. At Bâle, the veterinarian, Sigismund, for a long time furnished the vaccinators with lymph cultivated on bulls which were intended for slaughter; he inoculated them on the scrotum. Chauveau has also successfully vaccinated bulls, and so have other experimenters. Roloff, of the Berlin Veterinary School, has demonstrated how easily the bull could be infected. He slightly abraded the skin of the scrotum, and gently rubbed the vaccine lymph upon it; the characteristic eruption took place in due course. If bulls or bullocks stood in cattle-sheds with an equal number of cows, and were treated and exposed to contagion in the same way as these, there is every probability that we should have bull or bullock-pox frequently enough. Where this association is allowed to take place on the Continent, bulls and bullocks are infected. An interesting case of this kind is recorded in the *Repertorium für Thierheilkunde* for 1879. A bull, two-and-a-half years old, is there described as affected with Vaccinia, the pustules and crusts being situated on the scrotum, a hind and fore foot, and lips. The animal suffered a good deal. The lymph from the pustules was employed with success in the vaccination of children. So that it is simple nonsense to assert that the male bovine is exempt from Vaccinia; and it betrays ignorance of what has been observed by competent men, as well as lack of knowledge of pathology in general and this disease in particular.

(To be continued.)

ON THE PROSPECTS OF VETERINARY STUDENTS.*

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SIR AND GENTLEMEN,—

An apology is due for the nature of this paper. It was commenced at 10 p.m. on Saturday last, and is now presented to you. My name was on the list of essayists to fill a gap, if such occurred. I hardly expected to be so suddenly called upon, but have done my best to give you, in a systematic form, my humble ideas on a subject of paramount interest to you and

* Read before the Veterinary Medical Association.

to your teachers. My reason for especially bringing this subject under your notice is, that I believe no one man is capable of thoroughly viewing the matter, and therefore, by free discussion of it, we may gain general views, and perhaps correct any of our special ideas which tend to narrow-mindedness. It cannot be doubted that the majority of students come to college with very narrow views of the nature of our profession. And I fear that in some cases such remain uncorrected, even after these students have been launched into full professional career. Many, however, after becoming qualified, enter with zeal into professional questions, and to these is due the greater part of modern progress. To cite examples in illustration of this statement is not necessary, for such will occur to most of you; but I may be allowed to give you a friendly warning, lest, while avoiding the Scylla of political intrigue and jangling, you fall into the Charybdis of slothful empirical practice of professional details, and of oblivion of the interests of the profession to which you belong, and under whose banners you range yourselves in claims for public patronage. When entering into practice, retain both professional feeling and zeal for the advancement of science. You will, all of you, I hope, shortly experience a novel sensation. The eventful examination has taken place; you have proved yourselves fit to become professional men; a legally authorised body has admitted you as a member: the feeling is one of proud triumph at success, and unclouded hope for the future, so long as the whirl of excitement lasts. You join your comrades in mutual congratulations. You visit your old seat at college, and perchance, as you leave it for ever, "cast one longing, lingering look behind;" for the associations of college life are dear, and even the mute witnesses of our labours are not matters entirely of indifference to us. You say farewell to your ex-teachers with a feeling of equality, and sincerely thank them for past services, or charitably forget apparent oversights and deficiencies. You feel well-disposed towards all the world, and the world is about to receive you in its hard and pitiless grasp! Hitherto you have been supplied with means by parents or others. You now receive a letter or a hint that, as a professional man, you are in a position to earn your own living, and thus a question which has occupied your mind since your success presents itself with urgency. Your spirit of independence and duty alike prompt you to embark in earnest efforts to live independently. Your consideration of this matter takes colour from the following conditions:—

(1) Original social position;
(2) Preliminary education;
(3) Pecuniary position;
(4) Professional experience; and
(5) Address and character.

Social position.—In reviewing the material of which the student element at a veterinary school is made up, I observe men of certain stamps frequent; and from my personal knowledge of students, am in a position to describe them with a fair degree of accuracy. In these delineations I shall adopt no precedency, but draw my portraits from my own mind, and in the accidental order in which they suggest themselves. We start in our professional careers either in the desire to emulate some person in an established position, or in the wish to attain some place in society which seems desirable. Certainly there is such a thing as inherent love for science, but this is quite the exception. We mostly take after our fathers, and thus we have two student elements introduced—sons of veterinary practitioners, and sons of officers in the army, whether veterinary surgeons or others. The increasing social status of veterinary practitioners, and the remunerative practices of certain of them, prove attractive to those brought up to trade and agricultural pursuits, and the latter have the additional incentives, love of animals, and

assurance of the practical nature and value of veterinary surgery. These inducements attract also the sons of men by trade or otherwise connected with animals—horse-dealers, cattle-dealers, butchers, etc. A very important element is the sons of farriers, and of unqualified practitioners; and I am sure none of you will grudge the tribute I shall pay to these men. An idea seems to be prevalent that it is not difficult to become a veterinary surgeon, but those who in the present day look upon our profession as a "refuge for the destitute," find themselves sadly deceived. After hanging on at college year after year, these men become a byword among the students, and finally disappear into that oblivion for which they are best adapted. Besides these which I have mentioned, there are miscellaneous students, of whom I need allude to none especially. Of them, some are amateurs who are attracted to veterinary studies by love of animals, and who are not dependent upon the profession for a living. Cavalry officers, medical men, and others pass through a course of study to fit them for the more satisfactory performance of their professional duties, or to enable them to relieve animals when sick in lands as yet unvisited by veterinary practitioners. While such students generally enter into the matter in the amateur spirit, they (whether they qualify or not) seldom fail to diffuse into their special circles the information that a course of veterinary study is by no means a trivial task, and that the veterinary practitioner is worthy of a better social position than men are generally willing to accord to him. We shall now review the special facts concerning the various classes to which I have alluded.

(1) *The officer's son* generally desires to enter the army, and to attain the social status of an officer. Many "don't care a rap for the profession, provided they get their commission." Many such come to grief in their student career, and fail to become qualified—others have determination to gird themselves to their task. They find that, as they become able to appreciate science, they learn the attractions of professional knowledge, they attain their aim, and become good practitioners as well as good officers. If they do not find this, their energy and tact may enable them to become veterinary officers, but we hardly envy them their constant round of duties, which must seem but a distasteful drudgery, nor the difficulties which are apt to result from professional incompetency or indifference. These remarks will apply to the many, not officers' sons, who consider the veterinary profession an easy way to a commission.

(2) *The tradesman* desiring to become a veterinary surgeon brings to his task business energy and tact, and methodical business habits. He needs them, for in his office or his shop he has had but little opportunity of examining the habits of domesticated animals in health, a knowledge of which is most essential to veterinarians. Hard study, careful observation, and special attention to practical details will generally make such a man a good practitioner. He will find his business urbanity and skill in book-keeping useful to him in practice.

(3) *Farmers' sons* constitute most excellent student material. Brought up to country ways, well acquainted with the habits of all farm animals, with the details of feeding, working, breeding, and dairy management; familiar with certain methods of nursing and certain mild forms of disease, they have a grand start in professional life. With *mens sana in corpore sano*, they gird themselves to the task of surmounting any slight difficulties which the Matriculation Examination presents to them, master the technicalities of chemistry, botany, and anatomy, and the rest of their work is a labour of love. Those with an Agricultural College training ought to find no difficulty in retaining the good start which is given them beyond their fellow-students.

(4) *The sons of veterinary surgeons* generally commence their work with a constant evidence before them of the position which their studies may

ensure to them, as well as with the satisfactory feeling that they will, when qualified, be able to take in hand that which has been prepared by paternal labour and zeal. The precepts of their fathers, the observation of their practice, and the judicious guidance of their general and special education give these students opportunities not to be despised. Knowing the style of practice for which they are destined, they are apt to neglect professional matters which are not likely to be useful to them. This tendency must be averted.

(5) *Farriers' sons, etc.*—Men brought up to the forge or to the training stable, or connected with hunting establishments, and otherwise by their business associated with animals, and, as a rule, accustomed to treat them empirically, experience the want of scientific training. They are desirous that their sons shall obtain that education which they themselves have lacked. They impart what knowledge they can to the chosen one of the family, and economise to keep him at college. He enters as a student with rough manners—which, however, polish by association. He has a clear understanding that his sources of supply are scanty, and thus he must do his work well and quickly. If he succeeds he will become a professional man, will distinctly advance a grade in society; if he fails, will lapse into the forge from whence he sprung. He finds that the practice which his father has shown him empirically must be amended by science; he brings his practical knowledge of the management of horses to bear on his studies; his manipulative skill proves very useful. Such men are a most valuable source of supply of professional material. The work of these in entering the profession is uphill, and only energy of character can surmount the obstacles in the way. The profession thus gains valuable new blood. A knowledge of forge-work, of training-stable routine, and of the management of a stud is highly useful to a young man commencing a veterinary career. To a less degree, acquaintance with dairy and kennel management, and the feeding, fattening, and breeding of stock proves markedly beneficial. To view a horse, ox, sheep, or dog with the eye of a critic, and to know how to sit well down in the saddle across country, and how to feed and work horses of different kinds are highly valuable to a veterinary surgeon; but they must be looked upon as subordinate matters, affording a good basis to start with, but quite attainable after graduation; in accordance with the class of professional duty which may fall to the lot of each; his professional studies will make him acquainted with the theory of these matters. A general acquaintance with all of them is required but from the few.

(6) In observing the miscellaneous set of students, we have sometimes been amused at seeing the son of some member of the older professions, some sprig of aristocracy, or some purse-proud upstart enter upon his studentship evidently under the idea that he is doing a favour to the profession. Such either very soon alter their ideas, or suddenly disappear, finding "the veterinary students a low set," or haunt public-houses and music-halls until some flagrant act of insubordination necessitates their removal by the authorities, or in very shame their relations remove them from the unsatisfactory state of confirmed chronicity.

Men from these different sources differ very much in their mode of address and habits, and thus their fitness for their future career and their professional prospects will be influenced. We see some smart, lively, good-looking fellows, handy with horses, with a fair knowledge of dogs, used to hunting and shooting, able to handle a billiard cue, and we somehow or other associate them with the army. They do not seem very keen after cattle-practice, and when they "turn up" at the cattle-sheds, are generally lookers-on rather than handlers of the beasts. They seldom throw a sheep, except to decide a bet as to whether they can do so.

Again, we observe men, sometimes, with a slight tendency to tightness of trousers, who seem to be everywhere about the college. All the parts of the infirmary are familiar with their presence; they are critical in the operating theatre; confident and eminently useful in cheap practice; can be trusted to administer medicines, handle animals in a proper manner, and are always ready to apply a twitch, give a ball, or hold up a foot. We look upon them as likely to make excellent practitioners; they view matters with a utilitarian and practical eye—not unfrequently may be found surreptitiously performing operations on other men's dissecting subjects, and are not *quite* appreciative of science on its own account. They look forward with some confidence to the attainment of their "tickets," and may be termed essentially *business men*. New students are often of the burly rural stamp, with a local accent, and rough habits and address, stolidly contented, or good-naturedly jovial. Such men are apt to become the butt of their livelier companions, but this tendency is checked when the physical energies of the victim reduce the tormentor to the position of Pat, who "caught a Tartar."

These men, I observe, have generally true British pluck and staying powers. They do their work regularly and thoroughly, and become most excellent country practitioners.

Some men seem peculiarly endowed with the scientific habit of thought. They work their matriculation papers on system, and so come out high on the list. They take very kindly to the collateral sciences, but materia medica seems very indefinite to them. They so quickly grasp facts and laws that they are apt to neglect minutiæ. They are soon looked upon by their fellow-students as "well up." They are sought after with the greeting, "Give us a grind, old man." They sometimes put hobbles on the wrong way, and do not always succeed in throwing a sheep properly. Their dissecting tools are not always clean. They record all important cases, and take valuable notes. They shine at written examinations, but are a little awkward practically. Such students should force themselves to observe minutiæ apparently of little scientific value, but highly important practically. If they can succeed in doing so, they become the representative men of the profession. Their love of science will keep them to the front. They will become the representatives of veterinary surgery in the world of science. Better adapted for administrative than for executive duties, they can fill with credit government offices, military or civil, and the posts of teachers, which are so important to the profession.

Practice in the poorer districts of some of our larger towns requires men of a special stamp, such as are not wanting among students—active business men, keenly appreciative of the value of money, skilful in detecting the devices of low horse-dealers, *et hoc genus omne*, and able and willing to supervise forge-work. Not the least valuable traits in their character are, promptitude in emergency, and quickness of tongue, which fit them for opposition to the empiric who endeavours to outbid them in practice. Such men are useful veterinary pioneers, and thus are highly valuable to the profession.

The man who has "seen practice," and is constantly telling us so, is a special character. Perhaps he has been three years with a practitioner, and familiar with animals all his life. He is particularly officious when operations are on, and proves very useful then, or in the administration of medicines. He operates very boldly whenever he has an opportunity, and is probably particularly neat at *firing*. He talks greatly about experience, and scorns science, and the reasonings based on it. He brings to college with him some ancient note-books, and regards these as oracles remarkable for infallibility. Books, especially recent ones, he considers unnecessary. Unless he somewhat modifies his ideas, he periodically learns that examiners do not share his opinions on scientific matters, and at last he lapses into

chronicity. It is, doubtless, a very good thing to see practice, but we must remember that one case well *observed* is worth twenty *seen*.

I cannot help alluding to those excellent tacticians who sometimes are found amongst us, who seem somehow or other to always pass their examinations, and to get on very well without much work. Such men do not become scientific, but their plausibility renders them at home almost anywhere. They never do the profession discredit, and are always presentable. The light-hearted way in which they view life often secures them local and professional popularity. They are most useful members of veterinary societies as they come out strongly in the social line.

Here I may insert a few lines on the value of a good address. It is always to be cultivated, as tending to assist in obtaining appointments as well as to succeed in practice, and being of great use in the examination room. The *viva voce* system must always prove a useful part of veterinary examination, for in practice a veterinary surgeon is constantly being subjected to oral tests, and "stiff" ones too.

General preliminary education must be looked upon, not merely as giving an entry into the profession, but as a great aid to after success. Enlightened and liberal views are essential to every man who wishes to hold a prominent post in his profession. Thus, professional officers and teachers must be gentlemen in manners and education, to uphold the position of the profession they are so often called upon to represent. Army veterinary surgeons must always be fit to associate with gentlemen of liberal education. The private practitioner will always find general information of great benefit, though he will learn a very great deal from that noblest study of mankind—MAN. Many private practitioners are gentlemen of culture, and this adapts them for high social status, such as is implied in election to corporation posts, and some even prove adapted to scientific positions of local importance. General science, however, retains its hold on the minds of but the few.

Mediocrity asserts itself among veterinary students as in other ranks of life. Men deficient in natural ability, others deficient in stability, and some suffering from other disadvantages, often gain entry into the profession, either by chance or persistence.

Experience is valuable to the recent graduate, whether as a basis for testimonials of fitness for appointments, or as rendering him self-confident and fit for his duties. All professional experience has its price ; a knowledge of general practice, acquaintance with official routine, with the methods of agriculture, or of human medicine, are useful in certain cases, and all students should aim at variety of experience. Each practice has some special features, as we shall see, and we should endeavour to learn theory while seeing practice. In all cases, too, written records prove most valuable as a means of obtaining *sound* results ; the mind is treacherous, and unless you take careful notes you will not obtain the best results of your labours.

A man who has not seen practice must as soon as possible endeavour to repair this unsatisfactory state of affairs. This he may do by tendering his services to a practitioner as an assistant or improver. He must remember that he is receiving knowledge in payment, or part payment, for his services, and must not neglect to avail himself of the opportunities thus afforded, nor expect the mere possession of a diploma to ensure him full professional remuneration and other advantages. If a man without any practical experience goes at once into practice, he will find, that whereas the young practitioner will always have to work hard, and with little remuneration for the first two or three years, *he* will have still harder work, and will many a time feel inclined to throw up his profession and start again in life. He will find himself devoid of practical tact, ignorant of professional fees, and unable to inspire his clients with confidence. He will make many errors,

and will keenly feel these—but we all make mistakes, and many allow that when we do so the ignorance of the public often gives us credit; a long and anxious case, on the other hand, though successfully treated, may not secure us any applause. If he has money, let him still adopt the course I have mentioned, for he will then be more open to urgency from his employer if he grows slack, and will also be vested with more salutary responsibility. In plain words, he will have to "rough it," and that is just what will be best for him. Let him store up his money; he will always be able to find uses for it.

Some inexperienced men, by influence or luck, obtain official appointments; but this is not always an unqualified good; the effect is as a man makes it. His post may be a useful support while he learns practice, or it may enable him to spend his early years in ease and carelessness, and perchance, in after years, pass from beneath his feet, and precipitate him into penury and distress. A young man with a recent diploma and some experience finds his movements considerably influenced by his pecuniary position. If he has no money, he may try to obtain either a civil or military Government appointment, may obtain a private appointment to a company as veterinary surgeon, may become a veterinary assistant, or may commence private practice. Government veterinary inspectorships are to be obtained through the principal officers of the Veterinary Department of the Privy Council. Election with or without examination are the tests of fitness. Thermometry and the geographical range of disease are insisted upon. Civil Government appointments are very desirable, as ensuring a certain income: they generally are not so onerous as to prevent private practice, nor so lucrative as to render it unnecessary; but they give a *locus standi*, and an introduction to clients, which must be carefully watched lest it prove prejudicial to brother professionals. With county inspection the official duties are generally subordinate to the private, but the reverse results from the nature of port inspectorship duties. The latter posts require a certain amount of special knowledge, as epizoötiology, and the methods of transport of animals, and of hasty diagnosis. Army appointments can only be obtained after a special examination, in which stress is placed upon certain subjects, such as hygiene, injuries and diseases of horses, etc. Though the recent warrant has rendered the Army Veterinary Department a desirable aim for a young, moneyless veterinary surgeon, by enabling him to live as he *should* do on his pay, and to associate freely with his brother officers on terms of equality, let such a man think for himself as to whether he is well adapted for the social and professional duties of this station. If he loves his professional work, undoubtedly he will see more cases in private practice; if he desires to see the world and to taste the pleasures of good society, he will do so better in the army than as a civilian. Do his tastes incline to home and social comforts? let him remain at home and practise. The army, too, is not the place to make money; also not every man by address and education is fitted for the post of an officer. Care must be exercised, then, to avoid entry upon a false position. If a man decides that he is suited for and will like army work, he will find it much as I describe it. The army veterinary surgeon must be a gentleman in appearance and address, must be prepared to associate with the other officers, and be their referee in most matters appertaining to horses, especially hunting; must be prepared to select and purchase for them, hunters, chargers, hacks, etc., and also to select troop and waggon horses, and also those adapted to artillery uses. Each mounted branch of the service requires horses of a special stamp; of these the principal are Light Cavalry, Life Guards, Dragoon, Horse Artillery, Field Battery and transport horses. Most of these will be seen before they have acquired their adult conformation, so that to obtain a well-mounted regiment, skill from the veterinary surgeon is essential.

While these horses serve in the army they must be kept in health as much as possible, and thus the professional attendant must make hygiene in its several branches—as ventilation, forage, shoeing, etc.—a speciality. When these animals are injured he must restore them to their duty as soon as possible, or must promptly decide their unfitness for further duty. He must attend to these matters during the emergencies of the march and of active service in the field. Illness acquired in foreign service, and wounds, may remove him from active professional work, when he will receive a small amount to support him for the remainder of his life ; or he may receive promotion, which leads to no material change in his position until, after nearly a quarter of a century's service, he attains the rank of inspecting veterinary surgeon, which will remove him from executive to administrative duties. Few attain this dignity, and fewer still, by exceptional professional skill, experience, and administrative ability, with great length of service, attain the position of principal veterinary surgeon. The recent warrant provides that after ten years' service, a veterinary surgeon may retire or be discharged from the service with a bonus of £800, but though this money would enable a man to commence private practice, the ten years spent in the army hardly fits him for the struggle for existence with men who have made private business a speciality from their time of graduation. The *crosses* of practice, too, are unpalatable to a man accustomed to be obeyed. And if he has served in India he does not readily settle down again to English home-life. Few therefore will avail themselves of this privilege. The majority will remain until, at a certain age, compelled to retire with a pension for life, after which some try general or consulting practice. It is a good thing for an old soldier to have something to do. Army veterinary surgeons are under constant supervision, and have to fill up reports, and to spend some time over official letters, and sometimes they are sent to special duties of an inspecting nature, as to investigate outbreaks of disease. Novel animals in strange lands—as camels, elephants, etc.—are often the patients of army veterinary surgeons, who therefore require considerable versatility to adapt themselves to the emergencies of campaigning.

(*To be continued.*)

TESTIMONIAL TO MAJOR-GENERAL SIR FREDERICK FITZWYGRAM, BART.

It gives us great pleasure to be able to announce that it is proposed to present a testimonial to Major-General Sir F. Fitzwygram, Bart., in recognition of the great services he has rendered to the veterinary profession in this country, and especially as President of the Royal College of Veterinary Surgeons, and donor of annual prizes to recently graduated members. It is proposed that the testimonial should be in the shape of a portrait, to be presented to Sir Frederick, with a replica for the Royal College Council-room. The cost is estimated at from 300 to 400 guineas. Mr. Greaves is Honorary Secretary, and Mr. Cartwright (Wolverhampton) Treasurer, who receives subscriptions. The executive committee is composed of many leading members of the profession.

This movement has our entire concurrence and heartiest good wishes, and we have no doubt it will receive the unanimous support of the profession, whose interest Sir Frederick has so much at heart.

THE FELLOWSHIP DEGREE.

At a meeting of the Examiners for the Fellowship Degree on February 27th, the following gentlemen underwent the necessary examination, and were admitted Fellows of the Royal College of Veterinary Surgeons :—

Mr. William Sheppard Wallis, Halstead, Essex.
" John Wiggins, Market Harborough, Leicestershire.
" William Albert Russell, Army Veterinary Department, Dublin.
" Thomas Simpson, Liverpool.
" Isaac Vaughan, Professor, New Veterinary College, Edinburgh.

The following were the questions in the written examination :—

Physiology.

1. Enumerate the functions of the nervous system. State what is meant by reflex action, give an example, and mention in what respect it differs from a voluntary act.
2. What objects are accomplished by the function of respiration? How are these obtained in the different classes of vertebrata? State what conditions and structures are essential to the formation of a respiratory organ.
3. Describe the process of absorption, (*a*) from the intestines, (*b*) from the other organs and tissues of the body. State what changes chyle and lymph undergo as they pass through the glands previous to entering the general ci culation.

Comparative Anatomy.

1. Describe the chief differences between the digestive organs of a herbivorous and carnivorous animal.
2. State the difference observed in the arrangement of the bones of the anterior extremity of the horse, pig, and dog.
3. Describe the arrangement of the placenta in the mare, cow, sow, and bitch.

Therapeutics.

1. What is chloral hydrate? Describe its physiological and therapeutical actions.
2. Describe the physiological and therapeutical actions of alcohol, and state under what conditions its administration is indicated.
3. What are the therapeutical uses of the salts of iron? and give the indications for their administration.

Pathology.

1. Describe the nature and characteristic lesions observed in "Anthrax" or "Splenic Fever."
2. Enumerate the different forms of "Pneumonia," and describe the appearances presented in the various stages.
3. What are the principal differences between the morbid conditions known as "Hæmaturia" and "Hæmoglobinuria"?

Sanitary Science.

1. What constitutes the difference between hard and soft water, and how can the degree of hardness of water be accurately ascertained?
2. What is the effect of ergotised food on animals?
3. What sanitary measures are necessary for the prevention of Trichinosis in mankind and animals?

Epizootology.

1. What are the influences upon which depend the extension of ovine, bovine, and equine Variola?
2. What is necessary for the successful transmission of a contagious malady?
3. How is Swine-plague extended, and what measures are necessary for its limitation or suppression?

Surgery.

1. Describe the covered operation in castration, and state under what circumstances it is desirable to perform it.
2. State the principles which should guide you in operating for "Poll Evil" and "Fistulous Withers," and how you would proceed.
2. State how you would treat a "Chronic Quittor," and what surgical operation, if any, you would perform for its cure.

Dietetics.

1. Name the nitrogenous and non-nitrogenous elements of cereals.
2. State the comparative dietetic merits of oats, beans, Indian corn, and bran, and give your reasons.
3. State in order the hours for feeding and watering, and the quantity of food and water which you consider essential, under ordinary conditions, for an average farm horse in the twenty-four hours.

Proceedings of Veterinary Medical Societies, etc.

LANCASHIRE VETERINARY MEDICAL ASSOCIATION.

THE annual meeting of the above Association was held at the Blackfriars Hotel, Manchester, on the 19th of February, 1880; W. Dacre, Esq., President, in the chair. The following members and friends were present:—A. Gamgee, Esq., M.D., F.R.S., Professor of Physiology in Owen's College, Manchester; Dr. Renshaw, of Altrincham; Dr. Owen, Manchester; J. Lambert, 17th Lancers; S. M. Wilson, 12th Lancers; W. A. Russell, A.V.D.; Messrs. Peter Taylor, T. Greaves, Tom Taylor, John Lawson, W. A. Taylor, A. Lawson, E. Faulkner, T. Hopkin, J. B. Wolstenholme, and E. Kitchen, of Manchester; R. Roberts, of Kendal; J. B. Taylor, Ashton; Messrs. Elam and Hutcheon, Liverpool; J. Bunnell, Oldham; — Freeman, Hull; Peter Walker, Bradford; H. Beard, Macclesfield; J. Howell, Rochdale; W. Woods, Wigan; W. Whittle, Worsley; C. E. Challinor, Pendlebury; W. G. Schofield, Pontefract: T. Briggs, Bury; Mr. Litt, of Bolton, and the Secretary.

Letters of apology were received from Professor Pritchard, Mr. George Fleming, Mr. J. Welsby, Mr. W. Naylor, R. Reynolds, etc.

The minutes of the last meeting were duly read and confirmed, after which Mr. C. E. CHALLINOR begged leave to nominate as a member of this association Mr. T. Stone, M.R.C.V.S., of Walkden, near Manchester.

The President, Mr. W. DACRE, in making a few remarks, said—Gentlemen, I have no intention this evening of reading you a formal inaugural address, but the occasion of our annual meeting can scarcely be passed over without my rising to thank you most sincerely and heartily for the honour and undeserved compliment you have paid me, and my election at your hands to this chair for a second term of office; and I can assure members of this Association that with their support, and the valuable assistance of my fellow-officers, nothing shall be wanting to render the coming year of work one of interest and pleasure, and looking forward to the interesting paper we are to hear this evening, I hope we may terminate our labours as auspiciously as we are about to commence them.

The doings of our small world are so faithfully chronicled in our journals that it becomes a difficult task to speak of anything on an occasion like the present, that has not already been often brought before you in a better form; nevertheless, I am of opinion that your attention cannot be too often drawn to matters of vital importance to the profession—matters that should be found uppermost in the minds of every member of it.

I would speak more particularly of those reforms which we have loudly, persistently, but fruitlessly demanded in years past. You are all aware that the acquiescence of the Highland Agricultural Society to the generally expressed wish of the profession, that they should discontinue the issue of certificates to practise, has brought to a happy termination the dissensions that have so long agitated the profession, and clears the way for the introduction of such measures as will enable the public to distinguish a thoroughly educated and legally qualified person from one who has not undergone the test

of examination, and whose presence among us as a *soi-disant* veterinary surgeon, is inimical alike to the interest of veterinary practitioners and the public; and I think the time has now arrived when the profession should be relieved from the odium attaching to the presence in its ranks of charlatans and pretenders. It has been asked why we desire the insertion of a penal clause in our charter, and it has been said, Surely the gentlemen now leaving their Alma Mater and commencing to practise, are sufficiently strong in practical and scientific knowledge to compete successfully against quacks; and I say, Yes, if that competitor was honest; but when you remember the strata of society from which those persons crop out, and the class from which they are recruited, you will find, as a rule, the type of them is an utterly unprincipled individual. You will observe, gentlemen, that I say, as a rule, for I have certainly met exceptions in unqualified practitioners who would not have disgraced the profession, and I think it would naturally facilitate the passing of a new Veterinary Medical Bill if some special arrangement could be made on their behalf; and I am sure any legislature having for its object the protection of its interests would be universally acceptable to the profession and conducive to the public good.

Quite recently I have had some talk on this subject with an influential member of the Veterinary Committee of the Royal Agricultural Society, and he stated to me his intention of bringing this matter to the notice of that Board. Some four years ago, I introduced the subject to a Member of Parliament, and elicited from him an opinion that the veterinary practitioners had an equal right with the medical practitioners to be protected.

In mentioning these two cases, I merely wished to suggest that practitioners having an opportunity of coming into contact with gentlemen of influence, will greatly benefit the cause by making to them a statement of what we require.

In our friend, Mr. Geo. Fleming, we have one who has never yet taken up his pen without some substantial good to the profession arising out of his advocacy, and you will all be pleased to see the manner in which he is handling this subject.

Before concluding these few remarks, may I be allowed to suggest that if we are to have a new Veterinary Medical Bill, a clause might be inserted praying that veterinary surgeons may be exempt from service on juries? This is a privilege enjoyed by the medical profession, and one to which we are equally entitled; and now, gentlemen, I shall close these few remarks by hoping that a discussion may follow that will call forth the opinion of every one present.

The discussion was opened by Mr. PETER TAYLOR, but in consideration of Dr. Gamgee, it was postponed until the next meeting, and the apprenticeship clause was also added to the list for discussion.

Mr. WM. WOODS begged leave to move, at the next meeting, an alteration of Rule XVII., with respect to the election of honorary associates.

Mr. T. BRIGGS gave notice that at the next meeting he would move that the meetings of our society be held oftener.

Presentation of Testimonial to Mr. Samuel Locke by Thomas Greaves.

MR. PRESIDENT AND GENTLEMEN,—I rise on this occasion to perform a most pleasing duty—viz., to present Mr. Samuel Locke, our worthy and respected Hon. Secretary, with a testimonial in recognition of his valuable services. I consider it is alike honourable to him and creditable to the good feeling, the spirit, and character of our Association. We have been in existence about twenty years. During those years we have had many worthy and able Secretaries, who have performed the duties with credit to themselves and satisfaction of the association, but none (and I say it without the slightest spirit of invidiousness), none who has served us so well and so long as Mr. Locke

has done. Sir, your constant willingness, your uniform kindness and urbanity of manner, together with the regularity and efficiency in the performance of your duties, have secured for you the good opinion of your fellow veterinary surgeons, and we feel a desire to show you some mark of our esteem and respect.

The "Testimonial" I have now the great pleasure in presenting you with has been subscribed for by the members of the "Lancashire Veterinary Medical Association" almost unanimously. It is a cabinet, with five drawers and folding-doors, in mahogany, containing thirty-six table and small knives, thirty-six table and dessert forks, fifty-six table, dessert, tea, egg, salt, and gravy spoons, large and small ladles, carving knife and fork, fish slice and fork, napkin rings, sugar tongs and spoons, knife-rests, nut-crackers, etc., etc., all of Roger's best cutlery and the best electro-silver plate—one hundred and sixty articles in all. Every article bears your initial, and on the cabinet is a plate with the following inscription: "Presented to Mr. Samuel Locke, M.R.C.V.S., by the Lancashire Veterinary Medical Association, in appreciation of his services during the four years he acted as Honorary Secretary. 1880." It is considered very handsome, and does great credit to Messrs. W. Batty and Son, silversmiths, Market Street, Manchester. We hope and trust it will meet with your approval, and that you will accept it in the same kind spirit it is given. I feel that I am speaking the heartfelt wish of the President and every member of this Association when I say we wish you the enjoyment of health and every comfort, together with a long, prosperous life, and in this present your children and your children's children, together with all your friends, will see in what respect and esteem you are held by your professional brethren, amongst whom you are toiling and living, and even when you are no longer in our midst, this testimonial will perpetuate your memory, the excellence and worth of character, we now accord to you with so much pleasure.

Mr. LOCKE responded in a few words, thanking the President, Mr. Greaves, and all the members most heartily for their kindly feeling towards him, and for the honour they had conferred upon him in the shape of such a handsome testimonial, assuring the members that he never expected any remuneration for his services, but had accepted the office for the honour of the post, and what he had endeavoured to do was for the success of the Lancashire Veterinary Medical Association and the advancement of the veterinary profession in general.

A. GAMGEE, M.D., F.R.S., Professor of Physiology at the Owen's College, Manchester, then delivered the first of two lectures upon "The Physiology of Digestion."

The worthy Professor (who was received with great applause) commenced by describing the difference in structure between the so-called mucous and serous salivary glands, and drew attention to the changes which occur in the mucous glands when those pass from a state of rest into that of activity. The physical and chemical properties of the saliva were discussed at length, and it was shown that the saliva was a liquid which mainly served mechanical ends, seeing that in a large number of animals it is devoid of the starch dissolving-ferment called "ptyalin."

The various facts connecting the secretion of particular salivary glands with special functions, as deglutition, gustation, mastication, were passed under review, the lecturer pointing out that from them it could certainly be concluded that whilst the parotid gland secretes a saliva specially subservient to mastication, the sub-maxillary and sub-lingual glands secrete a liquid specially related to gustation and deglutition. In this division of the subject the Doctor discussed the quantities of saliva secreted by the principal domesticated animals on various diets.

The structure of the stomach was then described, the description bearing

especially upon that of the horse and dog. The lecturer pointed out that the old views which restricted the functions of the pyloric glands to the secretion of mucus, have been shown to be incorrect, the epithelium at the bottom of all the gastric glands being engaged in the preparation of gastric ferment "pepsine," whilst the large oval (so-called) peptic cells of the gastric glands proper of the older writers are probably concerned in the secretion of hydrochloric acid.

The lecturer then described the properties of the gastric juice, and showed how it acted upon the protoid constituents of food, converting them into peptones. The lecture throughout was fully illustrated by the aid of diagrams and experiments.

In the second lecture, Dr. Gamgee proposes to treat of the digestive changes which the food undergoes in its passages through the small and large intestines.

A cordial vote of thanks to Dr. Gamgee, proposed by Mr. PETER TAYLOR and seconded by Mr. T. GREAVES, for his most interesting and instructive lecture, was carried by acclamation.

A vote of thanks to the Chairman closed the proceedings.

SAMUEL LOCKE, *Hon. Sec.*

LIVERPOOL VETERINARY MEDICAL ASSOCIATION.

THE ordinary quarterly meeting of this Association was held at the Medical Institute, on the 13th February; C. W. Elam, Esq., President, in the chair.

Letters were read from the Secretaries of the Lancashire, Norfolk, and Yorkshire Veterinary Medical Associations. The Secretary stated that he had not received a reply to his letter from the Midland Counties Veterinary Medical Association.

After some discussion, it was unanimously agreed that this Association nominate for re-election to a seat of the Council of the Royal College of Veterinary Surgeons, Professor Brown, of the Royal Veterinary College, London, and that the President and Secretary act as an Election Committee to make the necessary arrangements for supporting his election, in conjunction with the election of the gentlemen nominated by the Lancashire, Yorkshire, and Norfolk Veterinary Medical Associations.

The PRESIDENT then delivered his introductory address. He commenced by thanking the members for the honour they had conferred upon him in electing him their President, and expressed the hope that his conduct in that capacity throughout his year of office would meet with their approval, and not belie the confidence they had so unsolicitedly reposed in him; as he assured them that no effort should be wanting on his part in order to make the meetings of the Association a success, both professionally and socially. He then referred to the great benefits which Veterinary Medical Associations had already been the means of conferring both on their individual members and also on the profession as a body, and strongly urged us to cultivate unity and *esprit de corps* among ourselves, in order to attain that position in the estimation of our Government and country which the practice of our noble and useful profession entitles us to.

He said we have now got a thoroughly representative council, and we shall have ourselves to blame if we do not send our ablest and best men to represent us there; and if we are only true to each other, and have the best interests of our profession at heart, we shall very soon feel ourselves in a position to demand from the Legislature that legal protection from the unfair and dishonest competition with which the profession has been so long burdened.

He then referred, in congratulatory terms, to the completed arrangements between the Royal College of Veterinary Surgeons and the Highland and

Agricultural Society of Scotland, whereby the latter body will discontinue their veterinary examinations and the issue of their certificates.

He spoke in commendatory terms of the improvement that had taken place in the curriculum of study at the Veterinary Colleges, but added that there were still great improvements needed both in the manner and method of teaching, in order to place within the reach of every student facilities for acquiring a thoroughly sound, practical, and theoretical education. He also expressed his opinion strongly that no young man ought to enter college without first serving an apprenticeship with a duly qualified veterinary surgeon.

In speaking of the court of examiners, he said that he hoped soon to see it composed entirely of veterinary surgeons; and after passing a warm tribute of praise to the medical profession for their invaluable assistance, etc., during the period of our protracted infancy, he added that we would never develop the latent resources now lying dormant in our members until we throw open these sources to honourable distinction and ambition; for if these were thrown open, our best and most promising young men, after finishing their college education and obtaining their diplomas, would have some inducement held out to them to continue in that course of study and research which will be seen to bring its own reward, and raise both them and their profession in the estimation of the public. He was persuaded that there are no lack of members now, who, if the positions were thrown open to them, would, with six months' study, be able to fill the position of examiners in every branch of our professional education with distinction and credit, both to themselves and to the profession to which they have the honour to belong.

Commenting on the legal responsibilities of veterinary surgeons, and the risks they incur in the practice of their profession, he said that there was no calling or profession free from risks and responsibilities, and he did not think it desirable that there should be; but as a safeguard against any unfair treatment, he strongly recommended all to become members of the "National Veterinary Defence Society," whose powerful aid is ever at the disposal of its members in time of need, and whose veteran officers are always accessible when counsel and advice are required.

He concluded a very instructive address by exhorting the members to endeavour by their regular attendance, valuable contributions, and personal influence, to induce others to become members, and to render the meeting both interesting and profitable.

Mr. PETER TAYLOR, of Manchester, then read his paper on, "Is it advisable to apply Counter-irritation in Acute Disease of the Respiratory Organs?" The following is a copy of the paper:—

MR. PRESIDENT AND GENTLEMEN,—I have selected counter-irritation for our evening's consideration, knowing it to be a vexed and much-disputed subject with some of our practical veterinary surgeons, and also with our learned and scientific men. I thought that a night devoted to its consideration would be profitable, interesting, and instructive.

I had the privilege some years ago of hearing an essay read at Leeds, before the Yorkshire Veterinary Medical Society, by Professor Williams, on "The Effect of Counter-irritation in the Treatment of Bone-spavin," when the late Professor Spooner honoured the Society with his presence, and took an important part in that interesting discussion. I had the pleasure of taking a part in that discussion, and now having had thirty-six years of extensive public practice and close observation in my profession justifies me in reading this paper before you; not that I am producing an elaborate and scientific thesis, my time being very short, since your respected President solicited my assistance.

I do assure you, by appearing before you in this position, I am, though

feebly, fulfilling the call of duty, and endeavouring to cement still closer the bonds of brotherly love and professional friendship.

The tendency of the present day is, I fear, to jump to conclusions upon insufficient practical observation and clinical experience. The most important part in a veterinary surgeon's education is undoubtedly to be gained in the sick-box, where every feature of disease can be watched and noted; and in order that the observation of disease may be profitable, it must be complete. Especially is the termination of a case instructive, and not the less so when the result is death; since we may then mark the way which the patient succumbed, and learn to guard against such an event in similar examples for the future.

If I were to believe in Professor Williams' treatment—as written in his work—in diseases of the respiratory organs, I should not have appeared before you in the position I do this night; though, at the same time, I am pleased to give unto him my warmest thanks for his great, meritorious, and noble works he has given to the veterinary profession, the result of much thought and great labour. I shall read you his remarks on Counter-irritation, so as to give you the most recent opinion of one of our ablest writers upon the effect of counter-irritation as applicable to the relief of acute inflammatory action upon the respiratory organs, before I open to you the result of my experience. (Mr. Taylor here read the extract referred to.)

Gentlemen, in all serious cases, let me impress upon you the necessity and great utility, and particularly in acute diseases of the pulmonary organs and their coverings, the first duty of a careful practitioner is to take an accurate, quiet, and collected observation of your suffering patient, so as to ascertain the structural form, the functional derangement, the peculiar symptoms, the painful or irritable countenance, the temperature by the thermometer, and the pulse, and make yourself acquainted whether your patient is a nervous and irritable one, or, on the other hand, is he a quiet, subdued, and plethoric one; and, in addition to all this, we must never lose sight of the fact that we are treating a living and a most vital complex organism, endowed with beautifully arranged and complicated nervous and circulatory systems. The latter organism is set into active motion at the birth of the animal, and continues in motion day and night, never ceasing one moment its action during the allotted period of its earthly existence. Interfere with this activity, and disease results; arrest it, and life ceases. How wonderful, how beautiful, are the works of the great and almighty Creator! in wisdom has He made them all, even to the tiniest insect.

Gentlemen, what mighty progress have these societies throughout our land given to our scientific advancement and our social status! Much has been done, much there is yet to do; therefore I implore you to be earnest, to watch, work, and do your duty to your society, and then you will individually advance your profession scientifically and practically, and endeavour to truthfully solve some of our complex problems which our most learned and scientific men have not as yet done for us. It is, I think, a disputed point and matter of opinion whether the primary cause of acute disease in the respiratory tract is a poison or an irritant impression made by the nervous centres, or whether it is from the imbibing of a diseased germ into the blood, or from some chemical or mechanical effect upon the organ or tissue affected, producing what is called inflammatory action or perverted nutrition. Whatever explanation may be given or accepted, how the diseased action is brought about in the respiratory organs, you are from your own observations and practical experience, I am sure, fully conversant with their manifold causes and symptoms.

I cannot allow the present opportunity to pass without adding my testimony to the great advance we have made in our improved methods of ascertaining

the progress or decline of diseased action by the unerring aid of that beautiful instrument, the thermometer, also by careful clinical instruction—in fact, gentlemen, our clinical aids in chest diseases may be said to be the pulse, respiration, its painfulness and quickness, and the temperature ascertained by the thermometer. All and each of these represent forces at work in the living body, all of which are now capable of being measured with great exactness. And such measurements show how closely such expenditure of forces is related to the *excreta* which represents the waste of tissues in health and disease.

The subject I have now in hand is, Is it advisable or advantageous to apply counter-irritation in acute disease in the respiratory organs? I should probably do more justice to this important consideration if I divided it under the following heads—viz., 1st, What is meant by the term counter-irritation? 2nd, How is counter-irritation believed to act? 3rd, If it acts as before mentioned, when and how should it be applied? 4th, When should it be abstained from, and why?

First, then, What is meant by the term counter-irritants? These may be defined to be remedies of external application, by which we endeavour to remove or diminish the morbid condition of a particular structure by artificially creating a new irritation or determination in some other part more or less remote from the seat of disease; but since in its most comprehensive meaning it would embrace too wide a field of physiological and pathological inquiry, and include the majority of those changes which are induced by such internal remedies as cathartics, diuretics, and diaphoretics, etc., therefore I have inserted the term of "external application," so as to define that the seat of irritation is transferred from an internal organ to the surface. The application of a counter-irritant for the relief of a labouring organ was doubtless suggested to the attentive observer by the occurrence of spontaneous translations of disease from one part to another, and by the obvious and immediate relief so frequently afforded by them, as, for example, in the subsidence of pulmonary and enteritic irritations on the appearance of Laminitis or a cutaneous eruption.

The object, then, of a counter-irritant is to produce a salutary change in an inaccessible organ by effecting an artifical change in one within our reach, and to transfer morbid action from a structure more immediately subservient to life to a less essential surface in sympathy with it.

In order to render such agents available in the cure of disease, much judgment and nice discrimination is necessary. In the hands of an inexperienced or rash practitioner, the evil might be aggravated rather than relieved. Various substances have been proposed at different times to produce counter-irritation, such as mustard, hot or boiling water, cantharides, ammonia, turpentine, preparations of iodine, setons, rowels, issues, strong acetic acid, actual or potential cautery.

I come now to the second part of my subject, viz., How is counter-irritation believed to act? I was instructed at my Alma Mater in the year 1842, and subsequently by that great and noble professor, the late Professor Dick, with very great force and emphasis, that two acute inflammations could not exist at the same time in a living animal, and by producing an external artificial inflammation you must of necessity relieve the internal morbid one. Our reasoning and clinical observation in the sick-box has materially modified this opinion. When counter-irritants operate so mildly as merely to excite the capillaries without occasioning any effusion of serum, they are called rubefacients, but if by increased strength or continued application they excite the extreme vessels into such a state of inflammation as to terminate in the effusion of a serous fluid and the elevation of the papillæ of the skin, forming what are called vesicles, which gradually enlarge and by their lateral ex-

tension soon coalesce, so that blebs of different size are produced. These vesicles are filled with a fluid rich in albumen, and generally contain some fibrine, or you may have a still higher grade of inflammatory action produced by the application of tartar emetic ointment, which is called a suppurant.

In acute inflammation of the organs of the chest, the counter-irritant I most chiefly rely on, or apply, is the best mustard mixed with tepid water; in other words, mustard cataplasm; when applied to the walls of the chest and breast it produces in a little time a sensation of pain, heat, redness, and swelling, the immediate effect as upon the peripheral extremities of the nervous system, and through them to the nervous centres, and from the nervous centres we have a reflex motor action, thereby increasing the action of the capillaries and the circulatory system on the surface upon which the counter irritant is applied. If counter irritation abstracts a large amount of nervous force, and causes a great determination of blood to the part upon which it is applied, combined—secondly, with large effusions of serum within the areolar tissue, we must I think, without the slightest doubt, relieve the vital organ or organs affected with morbid action. And that we do so, we know by careful observation and practice upon our suffering patients; we see the acute pain modified or relieved, and the cough reduced, the pulse becomes more soft and lower, the breathing more tranquil, the temperature becomes gradually a little lower, and the secretions and excretions more regular and natural. In fact, gentlemen, the countenance and the healthy condition is resuming its normal and wonted standard, a condition which any of us always welcomes, and are delighted to see in our suffering patients. In Pleurisy, Pneumonia, or Pleuro-pneumonia, the application of mustard cataplasms should be applied over all the walls of the thorax, throat, and breast, the greater extent of surface of the skin which the mustard is applied to, the greater is its influence on the inflammatory action of the organs within. Thirdly: If it acts as before mentioned—when and how should it be applied. Well, to practically qualify this, I will relate a supposed case. A very expensive cart horse recently purchased, rising five years of age, has changed hands, thereby changed diet, stables, and his daily work and climate—he has during the last week improved very much in his condition: he is suddenly seized after dinner time, or in the morning with a rigor or shivering fit, pulse hard and quick, breathing quickened, temperature 104° fæces coated with mucus—Schneiderian and conjunctival membranes increased in redness. Auscultation may detect, according to the degree, whether the Pleuro or parenchyma is mostly affected. The friction sound in Pleurisy, a rustling or laboured action if it is Pneumonia. If my patient is admitted when the rigor is set in, my first duty, after a careful examination, is to administer a nerve stimulant such as *Ammonia carb.*, apply warm clothing to the skin, and give him as pure air as possible to breathe. In the space of some hours afterwards, the hot stage succeeds the cold, and after a certain space of time, my patient has a painful expression, dirty mouth, quick breathing, pulse hard and quick, exalted temperature and cannot cough. I immediately apply a thick mustard cataplasm over all the walls of the chest and breast; over this I place thick paper; repeat in ten or twelve hours, according to the symptoms of relief produced, or continue to re-apply if the vital and delicate organs within are not relieved; and in fifteen minutes after the second mustard application I often apply a hot water blanket around the chest, and a mackintosh over the blanket. On the second, third, and perchance the fourth day, I may in severe cases apply this mustard cataplasm morning and evening.

Gentlemen, the medicine I most chiefly rely on is a draught composed of Belladonna, Spt. eth. nit., or Chloric ether, with Liq. ammonia acetatis—twice or three times a day, according to the urgency of the symptoms, etc.,

and I continue my treatment until the temperature is down to 101° pulse lower, mouth clean, secretions and excretions more normal, the appetite and countenance returned to a natural condition.

Fourthly: When should counter-irritation be abstained from? When the powers of life are ebbing, or when you have a weak pulse, blanched membranes, in all cases of Hæmorrhage, mulberry discharge from the nostrils, disintegrations of the pulmonary tissues, in eruptive fevers, or when you have an eruption of any kind on the skin.

In acute Laryngitis, when danger of suffocation is imminent, counter-irritation on the throat and breast, with Belladonna gargles and inhalations, are your sheet-anchors and your safe curative agents.

Gentlemen, we have yet much to investigate, much to learn, in order to overcome morbid action, and if I have awakened your attention and interest in reference to this important pathological and practical subject, I shall have given an impulse to the advance of our clinical observation. I have one request to make to you: receive what I have said in the love of truth; seek not to dispute, but to prove, to confirm, or correct my statements. It has taken some years of close observation and inquiry to give the advice upon counter-irritation that I have done to you this evening. Much! very much! remains to be done. I trust that I shall be assisted by you in the further prosecution of this important subject. Be careful how you observe in your clinical practice, and let those instructions be engraven upon your minds. *Fulness*, *accuracy*, and *probity* should be the legible characters written upon every case.

Gentlemen, our sick-boxes, our laboratories are always open, our resources are abundant and great; we, the scientific workmen, are never at rest; day and night our brains are endeavouring to unravel hidden problems; therefore in closing, I would say, continue faithfully to do your duty, and our profession will surely be advanced.

Mr. STORRAR said that he agreed in the main with the views so ably propounded by Mr. P. Taylor in his essay. He said that he had himself experienced much benefit from the application of a mustard cataplasm in attacks of Bronchitis, to which he was somewhat liable, and it was his general practice to apply a counter-irritant to the sides and chest in Pneumonia, Bronchitis and Laryngitis. He preferred mustard, and did not approve of severe applications of cantharides blister in such cases.

Mr. DACRE said that once he was a great advocate of counter-irritation in the treatment of chest affections, but he was now as strongly antagonistic to it. He did not apply mustard even in the first stages of such cases.

He said that if any one would carefully observe the symptoms exhibited by a pleuritic patient as he stands with an anxious painful expression—abdominal breathing, quick pulse, high temperature, and every manifestation of intense internal pain so characteristic of this disease, and then to order the application of two square yards of mustard to his sides as a remedy, he was gifted with a peculiar power of reasoning which he (Mr. Dacre) failed to appreciate. Some nervous horses would be almost driven to distraction by such a remedy. He maintained that in cases where mustard had been repeatedly applied, there was usually great prostration, and convalescence was very much retarded.

Mr. Dacre then related his experience of the effects of a blister which was applied to his own side for an acute attack of single pleurisy—how, notwithstanding that the blister acted well and was continued for twenty-four hours, it failed to give him any relief; but when the blister was removed, and hot water was applied, he felt relieved directly. His own practice in such cases was to administer a sedative internally, and apply soothing remedies externally, such as hot-water cloths, etc. After seven or eight days, when the

acute symptoms have subsided, he might apply a mild counter-irritant, but never during the early stages.

Mr. GREAVES said that they owed a deep debt of gratitude to Mr. P. Taylor for the able manner in which he had introduced the subject. The views he had propounded were very much milder then he (Mr. Greaves) had expected to hear. He thought, however, that the application of severe blisters to the sides in chest affections was not so much adopted now, even by the strongest advocates of the system, than it was formerly. He (Mr. Greaves) was taught it at college, and practised it for a considerable time afterwards, but he gradually came to adopt milder remedies; and he had no reason to regret the change, as in his experience fewer cases died under the milder treatment than under the more heroic.

As an instance of the power that unassisted nature possesses when not interfered with, he related the history of eighteen cases of chest affection which he was treating homœopathically. The medicine was used up, he had no more in his pharmacy, and there were no means available at the time for replenishing his stock. So he refilled the bottles with cold water, and ordered its administration as before. The patients all recovered. He believed, with the late Mr. Haycock, that no disease was ever cured by medicine. He did not consider that counter-irritation was necessary or advantageous in such cases. In his own practice, when a horse came in blowing, and manifesting symptoms of congestion of the lungs, he administered a dose of Carbonate of Ammonia, gave him a bran mash, and turned his head to the door, and he was generally all right in the morning. In cases of sore throat, or affections of the mucous membrane, counter-irritation acted more beneficially than on serous membranes.

Mr. REYNOLDS expressed himself as very much gratified by hearing Mr. P. Taylor's paper, as he believed it to be the offspring of several conversations on the subject during their journeys to London together. He (Mr. Reynolds) did not think, however, that those typical cases which had been mentioned were so difficult to manage as the cases where the patient was seen to be off his food, dull and adynamic, generally going from bad to worse, until he died. He had no faith in the old theory, that two inflammations could not exist in the body at the same time. Still, in some cases where you are very anxious about your patient, you have a difficulty in keeping your hands off him—you feel as if you were, at least, *trying* to cure him. In Bronchitis and Laryngitis, the application of a counter-irritant gave relief, and in adynamic paralysis he would rouse his patient by a counter-irritant, but he considered it useless in Pneumonia or Pleurisy. He did not rely much on the readings of the thermometer in such cases, unless they conformed with the other symptoms.

Mr. HOPKINS said that the old practice of *bleed*, *purge*, and *blister* was fast dying out. He, however, disagreed with Mr. Greaves in the opinion that a cold atmosphere was more beneficial than a warm one in the treatment of chest affections in the horse. Of course there were varying degrees and stages of congestion, and in such cases as Mr. Greaves had referred to, when taken in their first stages, they all got well. But as a general principle in the treatment of congestion or inflammation of the lungs, a mean temperature and dry air was, in his opinion, by far the best, as the circulation of the blood goes on more readily in hot air than in cold. As to the thermometer not being reliable in such cases, the temperature indicated the fever, but the fever stage may pass, and the patient still die. You must distinguish between the fever and the inflammatory process. He believed that counter-irritation was beneficial in Bronchitis—when the larger tubes only were affected—Laryngitis, and Strangles, but not in Pneumonia or Pleurisy. His own practice in the latter cases was to apply hot water and hot rugs,

with the internal administration of Aconite, placing the animal in a warm box, with pure air.

Mr. A. LAWSON expressed himself in favour of counter-irritation being applied in chest affections, although he did not believe in the beneficial effect of repeating it three or four times in one day, until the sides were raw, as was sometimes recommended. In Laryngitis he would apply a counter-irritant once, twice, or thrice with discretion, and when the animal commences to feed you may then come in with your soothing applications. At one time during an epidemic he tried both modes of treatment among the omnibus-horses of Manchester: a certain number he treated by the internal administration of Carbonate of Ammonia, and the application of hot cloths, and the same number he treated by the internal administration of Carbonate of Ammonia, and applied counter-irritation externally. By the former treatment he lost a large percentage of his cases, but by the latter treatment he did not lose one; he therefore considered it both good policy and sound reasoning to follow a practice that was successful,

Mr. WM. LEATHER said that he preferred hot cloths to irritants in the acute stages of chest affections, they gave a more uniform heat, etc. He put cloths around the body, and rubbed some mustard on to the front of the chest. In cases of acute congestion, he gave a stimulant and opened the box door; he was of opinion that the reading of the thermometer was sometimes affected, when inserted in the rectum, if the latter was full of fæces.

Mr. T. TAYLOR declared that he was completely in a *fog*; it would appear that the patient got better under any kind of treatment, and some died even under Mr. Greaves' mode of treatment. He contended that a great many animals must be killed by severe and repeated applications of counter-irritants to the chest in cases of Pneumonia, and nothing was more to be deprecated than the practice of trying to emblazon your coat of arms on a horse's sides. He agreed with others that the essayist had been much more modified in his ideas of counter-irritation than he had expected.

Mr. E. FAULKNER, after complimenting the essayist on the modified views expressed in his paper, said that he would like to know from Mr. T. Taylor if, during his long and extensive experience, he had observed any difference in the types and characters of chest affections? In some cases of congestion, where the pulse at night might be 72, and the animal blowing, he would administer a stimulant and slightly irritate the sides, and he would be all right in the morning. Some cases might go on to Broncho-pneumonia, and require further treatment. To these he would apply soothing remedies, coupled to good nursing. He believed that *dabbling* practitioners hurried their patients down hill.

Mr. W. A. TAYLOR said that he held a very strong opinion in favour of counter-irritation properly applied. In congestive Pneumonia you have an arrest of the circulation of the blood and a paralysed condition of the vessels. It is to act as a stimulus to these vessels that he applied a counter-irritant. In his own case, when suffering from an attack of Bronchitis, associated with lung complications, the application of a blister gave him immediate relief from pain; and if we can relieve pain by the application of a blister, we are certainly on the right track. But by repeated applications of counter-irritants you deplete your patients. Apply your counter-irritant during the crisis of the disease when it will have some effect, and do not be fiddling at it when your patient is dying.

In some cases of laryngeal and bronchial congestion, amounting in some cases almost to suffocation, the application of mustard gives great relief. He said that in those cases referred to by Mr. Reynolds, where the animal is off his food, dull, and adynamic, such cases are sometimes allowed to slumber because they do not manifest such acute symptoms as others; but if

you insert the thermometer you will find the temperature high, and then is the time to administer your stimulant and apply your counter-irritant. He then related the history of three similar cases of inflammation of the lungs, etc., which occurred at one place. The first one was treated on the soothing, anti-irritant principle—viz., hot rugs, etc., and the administratio nof Belladonna and Ether. It died, however. The other two were treated by the application of mustard at once, and repeated in one of the cases twelve times; both animals recovered, but he was convinced that the repeated blistering saved the last one.

Mr. WHITTLE said that he thoroughly endorsed the views on counter-irritation propunded by Mr. P.Taylor in his essay. Chest affections, he said, varied so; in some you would have the mucous membranes principally affected, and in others the serous membranes would be the principal seat of the disease; and as a consequence, our mode of treatment would require to be adapted to the peculiar type of disease present in each case.

Mr. WOODS said that he thoroughly agreed with the views of the essayist on this subject, and he had tried both modes of treatment.

About a year ago he had a great many cases of inflammation of the lungs, and very bad cases they were too. He put mustard on them immediately, and in some cases repeated it. His assistant was an advocate of the soothing-expectant treatment, and he declared that the patients would all die under such treatment as he was then adopting. But every one of them recovered. In one case, in the treatment of which he allowed his assistant to carry out his own plan for several days, the animal was getting so bad that he was afraid he would die; in which opinion his assistant concurred, and they at once applied a blister, repeating it every day for three days: the animal ultimately recovered. In Laryngitis, he said he had great faith in the application of Croton Liniment; it acts like a specific, producing a crop of pustules, but does not cause much external irritation.

Mr. W. A. TAYLOR suggested that the discussion of this subject should be adjourned, as it was evident from the diversity of ideas expressed upon it that further discussion upon it would be beneficial. This suggestion met with general assent from the members, and it was agreed that Mr. Morgan should open the discussion at the quarterly meeting to be held in August, as Professor Axe, of the R.V.C., London, had promised to open a discussion on "Contagious Diseases" at the next quarterly meeting.

A vote of thanks to the President closed the meeting.

DUNCAN HUTCHEON, *Hon. Sec.*

NORTH OF ENGLAND VETERINARY MEDICAL ASSOCIATION.

THE quarterly meeting of this Association was held in the Douglas Hotel, Newcastle-on-Tyne, on February 27th, 1880. The President, Mr. D. Dudgeon, Sunderland, in the chair.

Letters were read from the Secretaries of the Liverpool and Lancashire Veterinary Medical Associations, with regard to representatives on the Council of the R.C.V.S. After considerable discussion, it was agreed that the members of the Association, while approving of the re-election of the six retiring members, do not, individually, bind themselves to vote for each.

Interesting cases were related by Messrs. Hedley, Mulvey, and Nisbet, and after remarks on them from several of the members, the discussion on Mr. Mulvey's paper (Injuries to the Coronet and Feet) was resumed; each member relating a case on the subject, a very varied and profitable discussion followed.

The office-bearers for the ensuing year were elected, viz.:—Mr. D. Dudgeon, President; Mr. W. J. Mulvey and Mr. H. Hunter, Vice-Presidents; Mr. G. R. Dudgeon, Secretary and Treasurer.

A committee being elected to arrange for the annual meeting and dinner, to be held on the 28th May, at which Professor Pritchard will read a paper on "Some of the Contagious Diseases affecting Cart Horses," the meeting terminated. G. R. DUDGEON, *Hon. Sec.*

ONTARIO VETERINARY MEDICAL ASSOCIATION.

THIS Association was established in Toronto, in September, 1874, and has been steadily increasing in the number of its members, and the interesting character of its meetings. The province of Ontario, owing to the success of its Veterinary College, through the energy and perseverance of its principal, Professor Smith, is now pretty well supplied with qualified veterinary surgeons—in fact, the old class of practitioners is fast dying out. At the last session of the Provincial Legislature, an Act to incorporate the Association was passed, several clauses in which cannot but be beneficial to practitioners, the clause requiring registration especially so. Any person falsely representing himself to be registered is liable to a heavy fine. There was an act already in existence, which is still in force, making it a finable offence for any person to usurp the title of veterinary surgeon, unless he be a graduate of some recognised college.

The annual meeting was held in the Veterinary College, Toronto, as usual, on December 19th, 1879.

Professor SMITH, the President, opened the meeting by a short address, congratulating the members on the continued interest they took in the meetings of the Association.

The minutes of the previous meeting, in April, were then read and confirmed.

The Secretary and Treasurer's reports were read and adopted, showing a continuous increase in membership, also showing the finances, notwithstanding the outlay lately incurred in procuring the Act of Incorporation, to be in a favourable state, there being still funds in hand.

Communications were then read, amongst which were letters from the departments of Agriculture of the United States and Canada, in reply to communications respecting the spread of contagious diseases of cattle.

A paper on "Castration" was read, with the view of eliciting the opinions and the experience of practitioners on the different methods adopted in performing that operation. On this a lengthened and animated discussion ensued, the actual cautery, torsion, the clams, both with and without the caustic, and the ecraseur, having each strenuous advocates, the majority appearing to favour the caustic clam.

At the close of the debate, Professor SMITH remarked he had performed the operation by all the methods mentioned, and would advise all who were successful in their own method not to change; but he believed that ultimately the ecraseur would be the instrument that would come into most general use.

Mr. RUTHERFORD related a case of Tetanus, and the great benefit derived from the administration of bromide of potassium, believing it to produce anæmia of the cerebro-spinal system.

Mr. GRANGE related a case of Tetanus in the cow, yielding to treatment by belladonna. He also related an exceedingly urgent case of flatulent Colic, and the immediate relief and ultimate recovery resulting from puncturing.

Mr. GIBB and Mr. RUTHERFORD had also been successful with that operation.

Mr. GRANGE exhibited a plaster of Paris splint he had used in a fracture of the radius: the animal made a good recovery. He uses cheese-cloth,

putting the plaster on dry; he first baking it, rolls it up, and dips it in water in which a little alum is dissolved.

Mr. CAESAR and Mr. GIBB had also used the plaster of Paris bandage with advantage.

Moved by Mr. CAESAR, seconded by Mr. NEAL, and carried, that the sum of twenty-five dols. be appropriated for a gold medal, to be competed for by the students of the Ontario Veterinary College at the next spring examinations.

Mr. Thomson was appointed to read a paper on Tuberculosis at the next meeting.

The election of officers for the ensuing year resulted as follows:—Mr. Wilson, of London, President; Mr. J. S. Caesar, Cobourg, 1st Vice-President; Mr. C. Elliott, St. Catharine's, 2nd Vice-President; Mr. Sweetapple, Brooklyn, Secretary; Mr. Cowan, Galt, Treasurer; Directors—Messrs. Coleman, Duncan, Neal, Grange, Anderson, Standish, Rutherford, and Newton. Professor Smith was unanimously elected an honorary director.

Professor SMITH, on retiring from the chair, warmly thanked the members for his many re-elections. They had had many pleasant re-unions, and from the continued interest taken in the Association, he trusted and believed there were many more still before them.

MONTREAL VETERINARY MEDICAL ASSOCIATION.

THIS Association held its fortnightly meeting on February 19th, the Honorary President, Mr. McEachran, F.R.C.V.S., occupying the chair. After the usual business, the Chairman presented to the library, on behalf of the author, a treatise on Laminitis, by Dr. A. Holcombe, of the New York Veterinary College. It was moved by Mr. B. D. Prince, and seconded by Mr. Wm. McEachran, that the thanks of the Association be tendered to that gentleman for his kind donation. Carried. Mr. F. Torrance, student, Montreal, described a case of Variola Equina, which is at present raging extensively among the horses in this city and neighbourhood. Mr. Torrance, in connection with his case, gave some interesting facts concerning the disease, which by some is considered to be the small-pox of man communicated to the horse. Others, again, say that it has no relation whatever to that scourge. It is to be hoped that Mr. Torrance will allow his paper to be published in the *American Veterinary Review*, as this disease, which of late years has become quite common in this country, has not received the notice it should from veterinary writers. Mr. N. P. Hinkley, Buffalo, N.Y., read a paper on Hygiene, or care of horses in health and disease. Mr. Wm. McEachran read a communication received from Dr. C. C. Lyford, Racine, which was very interesting. It was a case of Epithelioma in the nasal cavity of a horse. At the next meeting Mr. P. Cummings was to read a paper on Auscultation, and Mr. Wm. Jakeman will describe a case.

ROYAL AGRICULTURAL SOCIETY.

AT the monthly Council held on March 3rd, the Hon. W. EGERTON reported the recommendation of the Committee, that for the future the Members' Veterinary Privileges should read as follows:—

I.—*Visits of the Veterinary Inspector.*

1. Any member of the Society who may desire professional attendance and special advice in cases of disease among his cattle, sheep, or pigs, should apply to the Secretary of the Society, or to the Principal of the Royal

Veterinary College, and consulting veterinary surgeon, Camden Town, London, N.W.

2. The remuneration of the consulting veterinary surgeon or inspector will be £2 2s. each day, as a professional fee, and the charge for personal expenses, *when such have been incurred*, will in no case exceed one guinea per diem. He will also be allowed to charge the cost of travelling to and from the locality where his services may have been required. These charges may, however, in cases of serious or extensive outbreaks of contagious disease, be reduced or remitted altogether, so far as the members of the Society are concerned, at the discretion of the Council, on such step being recommended to them by the Veterinary Committee.

3. The inspector, on his return from visiting the diseased stock, will report to the member, and, through the Principal of the Royal Veterinary College, to the Committee, in writing, the results of his observations and proceedings, which report will be laid before the Council.

4. When contingencies arise to prevent a personal discharge of the duties, the consulting veterinary surgeon may, subject to the approval of the Committee, name some competent professional person to act in his stead, who shall receive the same rates of remuneration.

II.—*Consultations without Visit.*

Personal Consultation with Veterinary Inspector ...	10s. 6d.
Consultation by Letter	10s. 6d.
Post-mortem Examination, and Report thereon ...	21s. 0d.

A return of the number of applications from members of the Society during each half-year is required from the veterinary inspector.

III.—*Admission of Diseased Animals to the Royal Veterinary College, Camden Town, N.W.; Investigations and Reports.*

1. All members of the Society have the privilege of sending cattle, sheep, and pigs to the infirmary of the Royal Veterinary College, on the following terms:—viz., by paying for the keep and treatment of cattle, 10s. 6d. per week each animal; and for sheep and pigs, 3s. 6d. per week.

2. A detailed report of the cases of cattle, sheep, and pigs treated in the infirmary of the College or on farms in the occupation of members of the Society will be furnished to the Council quarterly; and also special reports from time to time on any matter of unusual interest which may come under the notice of the officers of the College.

The Committee also recommended that Professor Simonds be granted gratuitously a further supply of 200 copies of his paper on Sheep-rot. The Committee presented the following report from the examiners for the Society's prizes and medals for proficiency in cattle pathology:—

GENTLEMEN,—We have the honour to report that the examination for the prizes offered by the Royal Agricultural Society, took place on Thursday, the 22nd January, at the Islington Cattle Market, and the Royal College of Veterinary Surgeons, 10, Red Lion Square.

Six candidates were eligible for competition. Of these, one declined; one, in consequence of the regiment in which he holds his appointment having been removed from Aldershot to Leeds, did not receive his notice until too late; and one sent no reply.

Three presented themselves, and these having afforded proofs of their practical acquaintance with the subjects brought under their notice, we adjudicate the prizes in the following order:—First prize, William Alston Edgar, 1,000 marks; second prize, William Frank Smith, 875 marks; third prize, Nicholson Almond, 735 marks, out of a maximum of 1,200 marks.

It is a subject for great regret that the liberal inducements offered by the Royal Agricultural Society have not been more appreciated by the recent graduates of the veterinary profession. Possibly this may in some measure arise from the expenses occasioned by a journey to London, and we would therefore suggest that some allowance for travelling expenses might overcome the difficulty.

THOS. WALTON MAYER.
D. GRESSWELL.
WILLIAM DUGUID.

The Committee had received reports on Anthrax experiments from Dr. Burdon Sanderson and Dr. Greenfield, which they had recommended to the *Journal* Committee for immediate publication. They recommended that Mr. Arkwright be added to the Committee.

This report was adopted.

Mr. MARTIN said he should like to remark that an outbreak of Foot-and-mouth Disease was reported to the local authority at Ely the other day. The inspector reported to the Privy Council, and Mr. Duguid went down from the Veterinary Department. They were, however, quite at a loss to know how it had arisen. If the Veterinary Committee would place themselves in communication with Professor Brown, they might be able to obtain some information which would prove of value.

Mr. DENT asked Professor Simonds whether it was true that the same disease as Rot in sheep had attacked cattle, and even horses.

Mr. CHANDOS-POLE-GELL and Mr. NEVILLE said they had known instances of the disease in cattle.

Mr. RAWLENCE said that he had never before known a cow die of a Fluke Liver during forty-five years' management of estates in the West of England, but now the disease was extremely prevalent all over his district.

Colonel KINGSCOTE was sorry to say that he had heard of three young horses in his neighbourhood dying from the disease.

Professor SIMONDS said there was no doubt that, in consequence of the long-continued wet weather of last year, many cattle are affected, as well as sheep. He did not anticipate that aged cattle would suffer materially from the disease, because there were plenty of instances of animals sent to the butcher having flukes in the liver at the same time. Those which would suffer most were young cattle. With reference to horses, veterinarians very rarely found flukes in the liver of a horse; and he did not anticipate that there was any truth, practically considered, in horses being so affected. Of course, one could readily understand that, under the circumstances in which sheep and cattle had suffered so much, flukes might have entered into the liver of a horse; but it would be a new feature in veterinary pathology if they found horses dying in consequence of a large number of flukes in their liver.

Obituary.

THE Registrar reports the following deaths of members of the profession:—Mr. C. Turner, Croydon, who graduated in 1849; Mr. J. C. Plomley, who graduated in 1840; and Mr. C. Harris, Balham, who graduated in 1856.

The death is announced of M. Lecoq, at Menton, near Versailles. M. Lecoq was seventy-five years of age at his decease. He was at one time director of the veterinary schools of France, and an earnest student of veterinary science, which, by his many writings, he did so much to promote. One of his best-known books is his "*Traite de l'Exterieur du Cheval et des Principaux Animaux Domestiques*," the first edition of which appeared in 1843.

Parliamentary Intelligence.

House of Commons.—March 11th.

THE AFGHAN CAMPAIGN.

DR. CAMERON asked the Under-Secretary for India what was the extent of loss of baggage animals on the North-West Frontier of India between the opening of the Afghan campaign in November, 1878, and April, 1879. Mr. E. Stanhope: I believe that the number of camels which died or disappeared in the winter of 1878-9 was 31,000. We have not yet very complete information on the subject, but we know that full compensation was ordered to be paid on the spot for animals actually certified to have been killed by the enemy. As regards all others, the fullest inquiry possible under the circumstances was ordered to be made before the claim was submitted, the superintendent of transport and the commissariat officer noting on each claim, and giving an opinion as to the amount to be allowed.

House of Commons.—March 15th.

GLANDERED HORSES IN LONDON.

Sir W. FRASER asked the Secretary of State for the Home Department whether his attention had been drawn to a statement made on the 3rd of March in the Kensington Vestry, to the effect that no less than 116 glandered horses had been slaughtered in that parish during the last six months; whether he considered that efficient means were taken to ensure the burial of the whole body of each animal; and whether he would cause inquiry to be made as to the spread of this disease. He added that from information subsequently received, he found that forty of the horses mentioned were affected in an adjoining parish, and he was also informed that the fat of these animals was sold for the manufacture of a compound known as "butterine." (Laughter.)

Lord G. HAMILTON, who was most imperfectly heard, was understood to say that the information supplied to him by the Head of the Veterinary Department was to the effect that there had been sixty cases of Glanders and fifty of Farcy. The method of disposing of the carcases was that they were taken to some place licensed by the Privy Council, after they had been disinfected, and were there disposed of by boiling. The general opinion in the Department was that the increase in the number of glandered horses did not arise from the spread of the disease, but in consequence of the greater activity which was displayed by the local authorities in detecting cases.

Mr. M. HENRY would like to know if it was possible to disinfect the body of a glandered horse. He considered it very doubtful.

Lord G. HAMILTON said the information he had given was on the authority of Professor Brown, the head of the Veterinary Department. He said the carcases were disinfected, and he presumed, therefore, that it was possible to do it.

Army Veterinary Department.

Gazette, March 2nd.

ROYAL ARTILLERY.—Veterinary Surgeon W. Boyd retires upon temporary half-pay (March 3rd).

Gazette, March 5th.

VETERINARY DEPARTMENT.—Veterinary Surgeon, First Class, C. Steel, from the 16th Lancers, to be Inspecting Veterinary Surgeon, vice W. Death, retired on half-pay; G. Aitken, Gent., to be Veterinary Surgeon, on probation.

Gazette, March 12th.

VETERINARY DEPARTMENT.—Veterinary Surgeon, First Class, J. Baldock, from the 3rd Hussars, to be Veterinary Surgeon, First Class.

Notes and News.

THE FAMINE IN IRELAND, AND HORSE-FLESH.—The *Abeille Médicale* of Paris, in alluding to the famine in Ireland, and the contributions towards relief made in all the churches in the French capital, remarks that it is not so much money as food that is needed, and asserts that in England and Ireland thousands of pounds of horse-flesh are lost while people are starving. Under these circumstances, is there not, it asks, a philanthropist who will attack the prejudice against hippophagy? The example of what has taken place at Paris, ought to open our eyes, it declares. During 1879, 10,281 horses, 529 asses, and 26 mules were killed for human food, and these yielded 2,067,850 kilogrammes of flesh, not including the heart, tongue, hair, liver, etc. In Paris, on the first day of this year there were no fewer than seventy-eight shops for the sale of horse-flesh. This excellent movement has been inaugurated by our very esteemed colleague, M. Decroix, ex-principal army veterinary surgeon, who makes this appeal in favour of the starving Irish people. It is much to be feared that many people in this country would rather perish than eat horse-flesh.

A NEW CATTLE DISEASE IN AUSTRALIA.—In the VETERINARY JOURNAL for September, 1879, Mr. Gordon, Chief Inspector of Stock in Queensland, describes a peculiar disease occurring among cattle in that colony, which, in one of its features at least, somewhat resembles *Emphysema infectiosum*. In June last, cattle imported from Queensland to Victoria were found to be affected with an unusual disease, the symptoms of which induced Mr. Graham Mitchell, F.R.C.V.S., to designate it "Yellow Fever." More than 100 cattle died, and Mr. Mitchell is of opinion that it was a form of bilious fever, of miasmatic origin, and indigenous to certain parts of Queensland.

CATTLE PLAGUE IN CHINA.—The *Times* correspondent at Shanghai, writing under date January 12th, states:—"At the present moment there is a violent cattle plague raging among the foreign dairies of Shanghai, and the public mind is much exercised as to whether there is or is not a general murrain among cattle. Of one fact there is no doubt, viz., that of fifty heifers in one shed belonging to a dairy-farmer here, forty-eight have died within the last ten days. China hides, being only half-cured, may carry infection, and the United States Consul here has informed his Government of the reported existence of a plague among cattle at Shanghai, in order that they may be forewarned, and take such steps as may seem good to them to prevent the importation of the hides of bullocks from this part of China."

MORTALITY AMONGST HORSES AT THE CAPE OF GOOD HOPE.—The Burghersdorp *Gazette*, published at the Cape, reports a serious mortality amongst some of the horses in that district. Mr. Olivier, a wealthy farmer near Burghersdorp, has recently lost between twenty and thirty horses. The horses show a lameness in one shoulder, and inflammation along the neck and side ensues, of which they die in a few days.

MULES IN MINNESOTA.—The *Times* Worthing correspondent says:—"Mules, although costing quite as much money, are preferred to horses; they stand the heat and annoyance of flies better; long days do not generally knock them up; they are always ready for their food, which consists of a mixture of two-thirds oats and one-third Indian corn, and of this they have sixteen lbs. to eighteen lbs. daily, or nearly as much as they can eat. They do not use more than ten lbs. or fifteen lbs. of hay. Fly-nets are employed in hot weather. The flies being so troublesome in June, and the first fortnight in July, the mules paw and strike with their feet, and the ground being dry and hard, they are sometimes shod in front. At other times shoeing is unnecessary. The mules stand sixteen hands high, weigh 1,200 lbs. to 1,300 lbs., and cost about 120 dols. in Missouri, whence it takes about ten dols. to

bring them home. Several ox-teams are kept. They cost per pair, when ready broken at three years old, 120 dols. to 125 dols., and last four years. A man and his pair of mules can be hired at one-and-a-half dols. to two dols. per day, the hirer feeding the man and his beasts."

Correspondence, etc.

PRELIMINARY OR TEST EXAMINATIONS.

To the Editor of the VETERINARY JOURNAL.

SIR,—Preliminary examinations are certainly one of the grievances which a student has to put up with. To him they seem quite unnecessary, for he considers, so long as he can satisfy the examiners at the Royal College of Veterinary Surgeons, that is all that should be required of him. Extra examinations, as "tests" assuredly are, should, to his mind, be dispensed with. On this subject I cannot do better than quote Mr. Gamgee's words, when announcing the abandonment of the system at Owen's College, Manchester. He says :—"After mature consideration, it has been decided by the Senate, with the sanction of the Council, that so-called 'test examinations' shall cease to be held in the medical school. These test examinations were examinations to which all students who were candidates for the primary examination of the Royal College of Surgeons were subjected, and which they were required to pass to the satisfaction of the professors of anatomy and physiology, as a condition to receiving such certificates as permitted of their presenting themselves before the Board of Examiners of the Royal College of Surgeons. In carrying out these test examinations, we had merely been conforming to the almost universal practice of the English medical schools—metropolitan as well as provincial—a practice which has been called into existence by the annual publication, by the Royal College of Surgeons, of returns showing the total number of students sent up by each medical school, with the percentage of successes and failures. A desire that these statistics should be as creditable as possible, has led the medical schools to institute these test examinations which, carried out with varying degrees of stringency, have been intended not merely to discourage indifferently-prepared candidates from presenting themselves for examination, but literally to prevent them doing so. This practice has appeared to the Senate and Council of Owen's College to be open to many objections. If a student has devoted himself with patience and assiduity to the curriculum imposed upon him by the examining boards, and has won a legal right to have his credentials signed, it appears hard that the signature should be refused because, upon being stringently examined, he is found to be an unsafe candidate. However desirable it may be to help a student to ascertain his fitness to pass any examination, and to advise him as to his best course, it appears undignified and unwise that advice should virtually become coercion. In abandoning compulsory test examinations, we do not, however, in the least desire to discontinue such examinations as will enable us to advise students as to their proper course in reference to the various public examinations. We shall, therefore, limit ourselves to advice, and in no sense take upon ourselves the functions which properly belong to the licensing bodies." "Nemo," who drew attention to test examinations in your Journal for February, brought his letter to a close by making an unwarrantable attack upon the private class system. In my opinion much benefit accrues to the student who joins the said classes, and their abandonment would be a decided loss to every one, but more especially to those students who were within a few months of presenting themselves for examination. How "Nemo" can expect that

"private classes" are to be included in a public prospectus, I am at a loss to imagine, and it is hardly legitimate to class a professional with a TRADE circular! How he gets at the twelve guineas extra per annum I cannot conceive; I should be glad if he would enumerate the items. He also seems to grumble at the educational fee. Surely he cannot expect to become enrolled as a member of any profession much under a sum of thirty-six guineas. Apologising, sir, for the length of this letter, and in bringing it to a close, allow me to subscribe myself "FIAT JUSTITIA."

Royal Veterinary College, 23*rd February*, 1880.

COUNTER-IRRITATION.

To the Editor of the VETERINARY JOURNAL.

SIR,—Since this subject was so ably introduced by Mr. Peter Taylor, of Manchester, before the Liverpool Association, I have given it a good deal of consideration, and wish to record my thoughts while they are fresh upon my mind. It is a subject I have always taken a deep interest in, and I have written several papers upon it, which are recorded in the journals. During my apprenticeship of six years, I clipped scores, probably hundreds, of horses' sides, to the extent of about sixteen or eighteen inches square over each side, and blistered them well with cantharides ointment, the blister being repeated for two or three days. In those days bleeding was always resorted to in Pneumonia and Pleurisy. I have seen many horses recover and many die under this treatment. Since my apprenticeship, about 1840, we had a good deal of Influenza prevailing, and some of the cases developed into Pneumonia: many died. I observed that nearly every one that was severely blistered died; as a consequence, blistering ceased to be a favourite remedy, and got into disuse. Bleeding, too, about this time was becoming discarded by many eminent practitioners, both in human and in veterinary medicine. I found my patients recovered in less time; the fever never ran so high, and I am quite satisfied my percentage of deaths is considerably less than it was when I resorted to blistering almost indiscriminately. I do not now use three pounds of mustard to the sides in twelve months.

I am quite aware that blistering, or what is called counter-irritation, is still practised by some eminent practitioners, some of my nearest and dearest friends, gentlemen whose judgment and intelligence I hold in the highest possible esteem. I am well assured that they hold their opinion conscientiously, it is the outcome of experience and habit; they have recourse to the application of mustard to the sides early in the attack, and estimate at a very high value the infiltration produced into the cellular membrane—the more the better. I have always failed to see sound reason in it. I once held these opinions, but have since then seen hundreds, probably thousands, of instances where disease in the lungs, accompanied with greatly accelerated breathing and quickened pulse, the attacks coming on in some cases suddenly and in others gradually and stealthily, has all subsided without the slightest counter-irritation to the sides. In some cases I do use a little stimulating liniment to the sides early in the complaint—I do it as the late Mr. John Lawson did it, viz., in the light of a diffusible stimulant, to rouse the dormant vital powers into action, cause the horse to move about, and disperse the congestion which seemed to be threatening the lungs. I am a full believer in this treatment, administering at the same time a diffusible stimulant internally, and rugs wrung out of half-scalding water over the thorax. I am of opinion—and I give this opinion deliberately, as the result of a pretty long and large experience—that where we have enormously swollen lobes of the lungs, heavy and consolidated, that counter-irritation, however severe and often applied, cannot possibly have any beneficial effect whatever upon it;

and in those cases where engorgement of the lungs has not taken place, where it is simply a loss of resciliency in the lungs, counter-irritation is quite unnecessary. Its tendency is to make a horse feel ill, and to be ill, and to cause an accelerated pulse, increase of fever, and prostration; it has a mysterious action upon the nervous system, and through it disarranging the sensitive and delicate functions of every organ.

I look upon a horse suffering under a painful disease, just as the late Mr. John Lawson did when he said, "The horse is a 'funky' animal; he soon gives up; he cannot stand much suffering." I believe severe extensive blistering produces, in the first place, a shock to the whole system, especially to the nervous system; then the pain, suffering, and torture he endures reduces his vitality: it exhausts him of his physical energy, and seems to rob him of his very life, and oftentimes contributes materially to increase the degree of fever, and affects the whole system, produces a state of sinking, often accelerates a fatal termination.

I remember being called in by a friend of mine, a veterinary surgeon; he was laid up in bed by a severe cold. He said, "I have been up three days and nights with my horse; I do not think you can do him any good, I think he is sure to die—but do what you can for him: he is a high-priced horse." I found that counter-irritation had been employed extensively and severely, the skin and hair all sloughing off to a considerable extent on both sides; setons over ribs on both sides and breast; blowing, and pulse ninety-six; loathing all food. The opinion I formed was that there was greater disease externally than internally: this kept up the pulse and every bad symptom. I at once removed all setons; gently cleaned off as much as possible all irritation; the patient was relieved, the pulse and every bad symptom presently subsided, and the case recovered. I have no hesitation whatever in saying, that had the former treatment been continued a little longer, the horse must inevitably have succumbed. I am not for one moment questioning the fact that there are some unhealthy subjects, with bad stamina in them, or some chronic disease on them, and if they become attacked, the disease will go on from bad to worse until they die, whether we use counter-irritation or not; nor need we be surprised at this, for are we not told that "two men shall be labouring in the field, one shall be taken and the other left; two women shall be grinding at the mill, one shall be taken and the other left"? But what I maintain is this, that we give nature a much better chance to weather the storm, and recruit her shattered energies, if we save her the torture of adding to her sufferings, which must inevitably accompany severe extensive counter-irritation—never forgetting this great truth, that in our struggle for existence the practitioner who has the least percentage of recoveries is likely to go to the wall, and *vice versâ*.

Cool Air or Warm Air for Pneumonia, or Congestion of the Lungs.—Mr. Hopkins ably advocated warm dry air in cases of Pneumonia in the horse. No man living has greater reason to believe in warm dry air than I have: it has saved my life over and over again, in sudden attacks of extreme difficulty of breathing, when I could scarcely inhale a thimbleful of air into my lungs; when I have had to place my mouth close to the fire, so as to inhale the heated rarified air. In a few minutes my lungs would relax, and in half-an-hour I could breathe with ease and freedom. I have thought, by parity of reasoning, that my horse-patient must be benefited in like manner. I have, on more than one occasion, taken my patient when suffering from congestion of the lungs in its earliest stage, into a saddle-house in which was a hot fire, and in which place a fire had been burning for weeks day and night, the air as dry as it could possibly be. I have tied my patient's head within three-and-a-half yards of the fire for three days and nights. I carefully noted the number of respirations and pulsa-

tions before he went in, and several times a day while in this place, but he did not experience the slightest benefit from it. I have placed other patients suffering from confirmed Pneumonia in this place, and with like results. The conclusion I have come to is, that warm air is not suited to the constitution of the horse when affected with either Pneumonia, congestion of the lungs, or Bronchitis. I am in favour of fires in stables during wet, damp seasons: it has a beneficial effect in keeping stables healthy; but my experience in hundreds and hundreds of cases is that cool air is natural to the horse, and whenever the air-passages are in an irritable state, whether the result of congestion, spasmodic action, inability in the lung-tissue, or loss of resiliency, or Pneumonia—that breathing cold air is the finest sedative we can employ, it goes direct upon the tissues affected. Cold air contains more oxygen than warm air does, it oxygenates and revivifies the blood more effectually; the legs and whole system keep warm—yes, tie the horse's head to the open door, instead of allowing him to get his head stuck in a corner and be breathing the same air over and over again: the practitioner who does not adopt this method is depriving his patient of that which has an influence for good greater than all his other remedies put together. On this point I have fully convinced myself; but on the question of counter-irritation, I do not pretend to solve that problem. We see plenty of horses die when this system is adopted, and they die also when it is omitted. Are we not told that man is born to die as the sparks fly upwards? Yes, we must leave it, leave it to Him to whom "a thousand years are but as one day, and one day as a thousand years."

Yours obediently,

Knott Mill, Manchester.
February 14th, 1880.

THOMAS GREAVES, F.R.C.V.S.

"INDIAN PAY AND ALLOWANCES."

To the Editor of the VETERINARY JOURNAL.

SIR,—In your report of the new pay regulations for the Indian Veterinary Department, you mention that there is an allowance of sixty rupees for forage for two horses. When such is the case, I ask why a veterinary surgeon, going from one station to another, is only allowed to take one horse at the public expense? I was a sufferer in this way during the late Cabul campaign. After having gone to the expense of a second horse, I had to leave it behind, as I was refused carriage. When doctors attached to cavalry and horse artillery draw forage for four horses, and are allowed carriage for at least three, I think that such an injustice to our department should be at once done away with.

Yours truly,

"A SUFFERER."

THE RESPONSIBILITIES OF VETERINARY SURGEONS.

To the Editor of the VETERINARY JOURNAL.

SIR,—I have been somewhat grieved to observe that your journal has been made the channel for indulgence in *personalities*. Under the above title much interesting and, may I say, valuable discussion might have arisen; but well-thinking members shrink from the debate for fear that they may ensnare themselves inadvertently. Discussion, to be profitable, must be void of all offence; but with us this matter has been thought unimportant, as the pages of your *contemporary*, in years gone by, will show. But ere I say more, I think I had better observe that I am not "une de la fatuité qui décide, qui fronde, parle bien de lui-même, et mal de tout le monde," neither do I profess to possess "tout le savoir obscur de la pédanterie." I therefore

shall not enter the discussion as it exists, but make a few passing comments on *responsibilities.*

It occurs to me that, as a body, we are as ignorant of our responsibilities as new-born babes. Firstly, our "responsibilities" to ourselves; secondly, to our profession; thirdly, to the individual members thereof; and fourthly, to our clients and the public. These questions are not to be answered by us collectively, I regret to say, but individually; and our opinions being so diversified, I fear they never will be answered collectively. To our professional disadvantage (upon my word, I began to write disgrace), we are such a divided lot that no philosopher will attempt to determine the existence of our "Vis unita fortior." The very motto falsely describes us, and the public, seeing this, hesitates to receive us. Much must be done to purge the "body corporate," before we enter into a discussion on *professional morality.* To do so now would be to do so under empirical laws, and nothing but unverified inductions would be adduced; therefore it behoves us to so improve ourselves individually, that eventually we may "collectively" represent a body corporate to the public eye, under the banner of "Vis unita fortior," in all sincerity and truth. Many young members despair of being able to accept responsibilities—they should bear in mind the success achieved by a Chatterton, an Erasmus, and others. Of Erasmus we are told he laboured under no small disadvantages of birth and education. Depressed by poverty, friendless and unsupported, or but very slenderly supported indeed, he made his way through all these obstacles, and, by the help of bright parts and "constant application," became one of the most considerable scholars of his age, and acquired the favour and protection of princes, nobles, and prelates of the greatest names in Church and State.

Until we do, by "constant application," acquire that knowledge which yields *common-sense*, we shall have constant evidence of professional meanness and ill-manners. Nothing else can emanate; therefore let us, who have *light*, shine on one another to edification, and thus draw those in darkness to be led by us into the realms of light, and not with reproof, but with pity meet them. If our rays of intelligence excel another, we should not glory therein, or affect ornament on any such topic as this under discussion; to do so is puerile. These lines of Cicero will explain:—

"Istiusmodi res dicere ornatè velle, puerilo est, planè autem et perspicuè expedire docti et intelligentis viri."

To conclude, let it be remembered that it is said, "To have learned the liberal arts *faithfully*, softens the manners, and operates as a fine corrector of ill-nature, envy, and anger." The original lines (Horace's) run thus:—

"Ingenuas didiciſſe fideliter artes,
Emollit mores,
Asperitatis et invidiæ corrector et iræ."

May all monstrous sweeping accusations cease from this time, and moderation abound, both in our intercourse with each other and writings, and in time the public will accept those of us who dare assume to be, and are *de facto*, civilised savages not destitute of moral sense.

Savage Yard, *March 11th.* "LA BELLE SAUVAGE."

To the Editor of the VETERINARY JOURNAL.

SIR,—Mr. Fraser's first cry was that in the veterinary world, "from Dan to Beersheba, all was barren;" but in his second letter, as it appeared in the March number of your Journal, he makes so many concessions that we may soon expect him to be one of our warmest friends. He is now so kind as to admit that he knows many presentable and respectable veterinary surgeons,

and he is content to conclude his effusion by advising us to study the writngs of "George Eliot," specially singling out from "Middlemarch," "Mr. Bulstrode" and "Mr. Horrock the Vet." Poor Horrock being little mentioned, and being besides of a taciturn disposition, cannot afford much profitable study; in fact, he takes scarcely any action in the work, except to quietly ride along and say and do nothing to injure any one. Furthermore, we are not informed, harmless as he is, whether he is a M.R.C.V.S. or merely one of those black sheep who practise without a diploma, and whom we seek by a penal clause to exclude from assuming the title of veterinary surgeon. It may be advisable to study Mr. Bulstrode to *avoid* imitating him, but otherwise it is difficult to see what profit can arise from dissecting his character. "George Eliot," being a lady, cannot be supposed to know much about the horse world, and yet she does not rail at the profession like Mr. Fraser, although she is not aware of its great and gratifying progress. How should she be? He has in his last communication prominently alluded to me as "our classical friend from the North," because I commended to him the study of the character of Thersites as depicted by Homer; but I am afraid he has not yet thoroughly comprehended it. To his denunciation of the professors I do not answer, because they are well able to take care of themselves. He gives us some interesting details of his own private life, and states he has lived in three different parts of England, and was not appreciated through prejudice against his profession. Has it never struck him that the cause of this rested in himself? I know, socially speaking, my experience is just the reverse; and I firmly believe in the saying (as old as Lord Bacon), "That the member of any profession makes his own position." As this is the last letter I shall trouble you with on this subject, I wish to tell Mr. Fraser that it is a golden rule to do unto others as we would they should do unto us. Let us at least be charitable in our judgments.

Your obedient servant,

"A VETERINARY SURGEON."

ARMY VETERINARY SURGEONS AND REWARDS FOR SERVICE.

To the Editor of the VETERINARY JOURNAL.

DEAR SIR,—I always understood that veterinary surgeons, from the commencement, were *commissioned* officers, ranking as lieutenant, captain, major, and colonel. I feel certain it was so in my time, and surely the service is not retrograde. The error appears to be that this fact was overlooked when the promoted *non*-commissioned officers' good-service pension was tendered Inspecting V.S. Gudgin. Mention this to the Commander-in-chief. I am sure it will be rectified. It is a mistake altogether. I remember His Royal Highness dining with us after the Crimean war, and the eulogistic terms he employed when speaking of us in his "after-dinner speech," still ring in my ears. No! the insult to the Veterinary Department is not intentional, take my word for it, and time will prove I am right.

Yours obediently,

London, W., *March 12th*, 1880. "AN OLD COMRADE."

VETERINARY TITLES AND THE ARMY VETERINARY DEPARTMENT.

To the Editor of the VETERINARY JOURNAL.

SIR,—The letters mentioned in the letter signed "Cygnus" in your last number, I presume mean Fellow of the Veterinary Medical Association, London, which has been connected with the Camden Town Veterinary

School for a number of years, and which title can only be obtained under certain regulations.

I am much pleased with your remarks on the Army Veterinary Department and the Zulu War; but what is wanted is the recognition of the veterinary profession by the Queen in Council, and if this was taken up by the President and Council of the R.C.V.S., and their wishes expressed in a petition to Her Most Gracious Majesty, and properly presented, all cause of complaint would, I think, be removed.

Believe me, yours faithfully,

THOMAS WALTON MAYER,
Professor of Veterinary Surgery at the Agricultural College, Cirencester.

March 4th, 1880.

To the Editor of the VETERINARY JOURNAL.

DEAR MR. EDITOR,—In reply to the question asked by your correspondent, "Cygnus," in this month's issue of your interesting and ever-welcome Journal, permit me to ask for space to inform him that the initials, F.V.M.A.L., mean that the gentleman making use of them is a Fellow of the London Veterinary Medical Association, and like your humble servant, holds a proper certificate duly signed by two of the professors of the Veterinary College, whereby he is authorised to use the aforesaid initials after his title of M.R.C.V.S., whenever he pleases.

I am, dear Mr. Editor, faithfully yours,

Kingston-on-Thames, *March 3rd*, 1880. WM. FURNIVALL.

"FALSE PLUMES," AND "PENAL CLAUSE."

To the Editor of the VETERINARY JOURNAL.

SIR,—I cannot help thinking our profession needs searching reform before we dare to seek a penal clause; and as you have proved yourself to be the leading veterinary reformer of modern times, in every particular, I will assist you to give *exposure* to the factors of quackery; and I am certain you will do your part nobly, as you have done in "honest competition." Well, sir, to begin, let me ask: "Where do the quacks qualify for quackery?" Why, with our big metropolitan "vets.," as *running doctors*. These men are generally blacksmiths or grooms, who are entrusted by these *magnificos* to visit, bleed, purge, drench, and "back-rake." Most emphatically I assert that this "running doctor" business is a *burning disgrace* to our profession, and I do hope you will begin a thorough exposure at once. These running doctors *drink*, as well as give *drink*, and no doubt keep *business going* with the grooms and stablemen. They are, not unfrequently, entrusted to attend cases entirely, our grand practitioner never seeing the patient at all; so John Clyster, the "running doctor," has sole *possession* of the stableman's confidence. After a few years John has a kick-up with the "governor," gives up the *shop*, as he calls it, and, as he has done all the "governor's" work for so many years, he commences business on his own "hook," dubbing himself "Veterinary Surgeon," "late manager, assistant, or foreman to Mr. Eurytus Centaur, M.R.C.V.S." It is a burning disgrace to us that such men should be permitted to represent the masters as they do—the system must be exposed.

Let our young graduates buckle to and fill their place; for, without the apprenticeship clause, they know little of practical duties, fresh as they are from college study; and here is a means to an end much to be desired.

I have never employed a "running doctor," because I knew it was the most prolific source of *quackery*, and I have always found my young men

from college most anxious to assist and faithful to their duty. So I will not listen to our *grand practitioners'* excuses: "These young gentlemen won't and can't do the dirty work," etc. Bosh! I say. Assist, Mr. Editor, to raise the profession by putting down the quack factory. Blush at my remarks? Well you may. I blush that I have not written to you about this disgraceful business before.

Now, Mr. Editor, speak out. I know you will, and shame them into that about which your two correspondents, Messrs. Fraser and Lambert, differ so much—"morality." Ever yours obediently

London, *March 12th*, 1880. "AN OLD LONDON PRACTITIONER."

[There can be no doubt whatever that this "running doctor" system is a source of serious injury to the profession, and one of the most fruitful causes of quackery. Several instances occur to our mind in which these men are now practising as "veterinary surgeons." The profession should at once discountenance the "running doctor" system of conducting practice. It is bad and pernicious.]

THE DISEASES OF SHEEP.

To the Editor of the VETERINARY JOURNAL.

SIR,—A letter appears in the Journal for the present month reflecting discredit on some of our veterinary teachers, that they have discarded granting the requisite and necessary attention which should be devoted to the diseases of sheep in their lectures to their pupils I am a M.R.C.V.S., and graduated a few years ago in Edinburgh, having passed my period of study at the Dick College, and most positively say that, during my course of study, the utmost care was taken by the Professor of Cattle Pathology (Professor Walley) to explain clearly, theoretically, and demonstrate practically, the causes, symptoms, treatment, and *post-mortem* appearances of the various diseases affecting sheep, and have been present many times when he has exhibited to his class the livers of sheep affected with Rot, with a clear exposition of the causes, etc., relative thereto.

I am in a position to substantiate the above statements, not only by reference to fellow-students, but also by reference to notes taken by myself at the time. Special attention was also devoted to the important subject of "*diet*."

I enclose my card, and trusting you will find space for, and be agreeable to insert, this in your next issue,

I have the honour to be, sir,

March 14th. Your obedient servant,

"ZULU."

"PATHOLOGY," "ANATOMY," AND "PROFESSORSHIP."

To the Editor of the VETERINARY JOURNAL.

DEAR SIR,—The advertisement soliciting candidates to apply for the vacant chair at the R.V.C. has certainly puzzled me, as well as several of my medical friends; and it occurs to me, that with many other matters in the Institution, there is also much need of reform in the duties pertaining to the professorial chairs.

"Wanted, a Professor of *Pathology* and *Anatomy*."

Now it is *multum in parvo* here. The pathologist must also be the anatomist. Can we select two branches of our studies so diametrically opposed to each other? I think not. Then why on earth unite the two? A *sound* pathologist is a practitioner who, in the broad field of practical research, has reduced scientific hypothesis to sound reasoning facts—something more than *conjecture*. A *sound* anatomist is one who has reduced his

scientific research to the narrow field of the dissecting-room, although that field yields wide expanse for thought and wonderment at the mysterious animal mechanism displayed by the Great Architect.

Each field of study and research is, to my view, a separate enclosure, and worth a life's study; therefore I take it that a professor, to grasp pathology and anatomy in a really scientific institute, will be a *lusus naturæ*, if the sense (*scientific*) be strictly adhered to. I feel it to be a duty incumbent on me to draw the attention of the profession to the matter; and if the body follow my views, the Governors may soon be led to see how erroneous the jumbling up together of two distinct and separate courses of study by them has been remarked by the profession. If, on the other hand, Mr. Editor, you think my *argumentum ad judicium* should not be issued, kindly find room for it in your waste-paper basket, and believe me to be

Yours,

London, *March 12th.* ROBERT WARD, F.R.C.V.S.

CALCULUS IN THE RECTUM OF A PONY.

To the Editor of the VETERINARY JOURNAL.

DEAR SIR,—I have to-day forwarded you a calculus which was taken from a pony that was under my treatment yesterday. I do not know anything further about the case, than that I was called in on the 1st inst. to see the animal, as it was unwell. Considering it to be a case of obstinate constipation of the bowels, I treated it accordingly. Unfortunately, it was sold to a knacker, who opened it previous to my arrival in the evening. However, I succeeded in securing the calculus forwarded.

During twenty years' practice I have not met with a similar case. From what I can gather, the calculus was found in the intestine, as the man says, "close under the kidneys." I therefore conclude that it was in the rectum. I am of opinion that it had been present in the large intestines for a considerable time, and being at last forced into the rectum, where, on account of its volume, it could not pass on, it caused obstruction. The questions then arise—What was the origin of the calculus? How long was it in forming? And what is its composition?

The animal was employed by a small farmer, and had previously been a carrier's pony; but owing to bad temper it was sold to the last owner. I have understood that these concretions are frequent among millers' horses.

Should you consider the specimen of interest, I shall be glad to hear your account of it in next month's VETERINARY JOURNAL.

Yours obediently,

Royston, *March 3rd.* THOS. R. SCRUBY, M.R.C.V.S.

[The specimen sent is not a concretion, but an intestinal calculus, somewhat spherical in shape, about five inches in diameter, and weighs about two pounds. It has the ordinary characteristics of an ammonia-magnesian phosphatic enterolith, and we think our correspondent is quite right in his supposition, that it had left its original bed, was carried into the rectum, where it became fixed, and so produced obstruction of the bowel.

The mode of formation of enteroliths is now pretty well known. The mineral matters which enter into their formation are derived from the food upon which the animals are fed, and especially the coarse meal and husks of cereals. The salts themselves are not very soluble, and occur in the intestine in a state of saturation, in which condition they are readily deposited around any foreign body—as a pebble, small bit of metal, etc., which serves as a base or axis of crystallisation; or they may be formed by the mutual reaction of the soluble phosphates and the ammonia salts. We have not made a section of the calculus, so cannot venture to give an opinion as to its age.]

A HAIRLESS CALF.

To the Editor of the VETERINARY JOURNAL.

SIR,—In the early part of February, I was shown a heifer calf, the property of Mr. W. Bell, of Stanion, a village near here. At the time I saw it, the animal was about a fortnight old, and with the exception of a small tuft at the end of the tail, there was not a hair to be found on the body, the skin being as smooth and soft as a baby's. On inquiry, I found that the cow (a well-bred animal) had calved at her proper time, and that the sire was a pure-bred shorthorn bull. I advised the owner to clothe the calf, as it appeared to be suffering from the cold, although in other respects well and hearty.

Whether it d'd succumb through cold or not, I am unable to say, but I was told it only lived about a week after I saw it.

Under what order would such a monstrosity be classed, if monstrosity it can be termed? I am, sir, yours obediently,

Kettering, *March 6th*, 1880. T. H. MERRICK, M.R.C.V.S.

[An animal suffering from congenital Alopecia cannot be designated a "monstrosity." An apparent absence of hair at birth is not extremely rare, and this absence may even continue through life. Hairless horses now and again figure at fairs. Sometimes the Alopecia is accidental, and due to temporary or permanent disturbance in the hair-follicle. When congenital and permanent, the hair-follicles are either absent, or so undeveloped that they cannot grow the hair. The absence of hair need not have caused the death of the calf. A similar case to that of our correspondent, is described in the *Recueil de Méd. Vétérinaire* for February 29th. The calf is alive.]

TO CORRESPONDENTS.

A NUMBER of communications and letters are unavoidably held over until next month.

CONSIDERING the demands on our space, we again beg Secretaries of Veterinary Medical Societies to condense their reports as much as may be compatible with the interest of their proceedings.

Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from C. H. Sweetapple, Brooklyn, U.S.A.; J. D. Overed, Blofield; J. W. Hill, Wolverhampton; T. Greaves, Manchester; J. H. Steel, London; T. R. Scruby, Royston; G. Mitchell, Melbourne; Professor Walley, Edinburgh; F. F. Collins, Simla; W. H. Coates, London; A. Gunn, Beauly; A. H. Santy, Norwich; R. Moore, Army Veterinary Department, Pretoria; L. Butters, Norwich; C. Whitworth, London; T. W. Mayer, Cirencester; T. H. Merrick, Kettering; "An Old London Practitioner"; J. H. Cox, A.V.D., India; "Pferd"; "La Belle Sauvage"; "A Sufferer"; H. J. Cartwright, Wolverhampton; S. Locke, Manchester; "Zulu"; "A Veterinary Surgeon"; T. H. Prior, Parsonstown; G. Kidney, Dublin.

BOOKS AND PAMPHLETS: *A. H. Holcombe*, A Contribution to Veterinary Pathology, Laminitis; *M. E. Decroix*, L'Hippophagie et les Viandes Insalubres; *W. Fricker*, Chirurgisches Vademecum für Thierärzte und Studirende.

JOURNALS, ETC.: *Wochenschrift für Thierheilkunde; Archives Vétérinaires; Journal of National Agricultural Society of Melbourne; Chicago National Live Stock Journal; Lancet; Farmer; British Medical Journal; Oesterreichische Vierteljahresschrift für Wissenschaftliche Veterinärkunde; Recueil de Méd. Vétérinaire; L'Echo Vétérinaire; Animal World; Mark Lane Express; Agricultural Gazette; Army and Navy Gazette; Medical Press and Circular; Der Thierarzt; Revue Vétérinaire; Il Medico Veterinario; Annales de Méd. Vétérinaire; Deutsche Zeitschrift für Thiermedicin; American Veterinary Review.*

NEWSPAPERS: *Toronto Evening Globe; Paper and Print; Stockport Advertiser; Irish Times; Cyprus; Montreal Daily Star; Montreal Gazette; Scotsman.*